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U.S.

BUREAU OF AMERICAN ETHNOLOGY

BULLETIN 185

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# RIVER BASIN SURVEYS PAPERS

**Frank H. H. Roberts, Jr.**, *Editor*

## Inter-Agency Archeological Salvage Program

NUMBERS 26–32

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# LETTER OF TRANSMITTAL

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Smithsonian Institution,
Bureau of American Ethnology,
*Washington, D.C., June 10, 1961.*

Sir: I have the honor to submit the accompanying manuscripts, entitled "Small Sites on and about Fort Berthold Indian Reservation, Garrison Reservoir, North Dakota," by George Metcalf; "Star Village: A Fortified Historic Arikara Site in Mercer County, North Dakota," by George Metcalf; "The Dance Hall of the Santee Bottoms on the Fort Berthold Reservation, Garrison Reservoir, North Dakota," by Donald D. Hartle; "Crow-Flies-High (32MZ1), A Historic Hidatsa Village in the Garrison Reservoir Area, North Dakota," by Carling Malouf; "The Stutsman Focus: An Aboriginal Culture Complex in the Jamestown Reservoir Area, North Dakota," by R. P. Wheeler; "Archeological Manifestations in the Toole County Section of the Tiber Reservoir Basin, Montana," by Carl F. Miller; "Archeological Salvage Investigations in the Lovewell Reservoir Area, Kansas," by Robert W. Neuman, and to recommend that they be published as a bulletin of the Bureau of American Ethnology.

Very respectfully yours,

Frank H. H. Roberts, Jr.,
*Director.*

Dr. Leonard Carmichael,
*Secretary, Smithsonian Institution.*

SI - Circ.

# EXPLANATION OF THE INTER-AGENCY ARCHEOLOGICAL SALVAGE PROGRAM

The Inter-Agency Archeological Salvage Program is a cooperative plan of the Smithsonian Institution; the National Park Service and the Bureau of Reclamation, Department of the Interior; and the Corps of Engineers, Department of the Army. It was formulated, through a series of interbureau agreements, for the purpose of recovering archeological and paleontological remains that would otherwise be lost as a result of the numerous projects for flood control, irrigation, hydroelectric power, and navigation improvements in the river basins of the United States. Various State and local agencies have assisted in the work. To carry out its part of the joint undertaking, the Smithsonian Institution organized the River Basin Surveys as a unit of the Bureau of American Ethnology. The National Park Service has served as liaison between the various agencies and has provided the Smithsonian Institution with all of the necessary information pertaining to the location of proposed dams and other construction and their priorities. It has also had responsibility for budgeting costs of the program, funds for which are provided in the annual appropriations of the Department of the Interior. The operations of the River Basin Surveys, Smithsonian Institution, have been supported by funds transferred to it from the National Park Service. Through agreements with the National Park Service, money has also been made available to State and local agencies to supplement their own resources and aid them in their contributions to the program.

*The River Basin Surveys Papers, of which this is the eighth bulletin, are issued under the scientific editorship of Frank H. H. Roberts, Jr., director of the Bureau of American Ethnology.*

SMITHSONIAN INSTITUTION JUL 1 2 1963

# PUBLISHER'S NOTE

A separate edition is published of each paper in the series entitled "River Basin Surveys Papers." Available copies of Papers 1–32 can be had upon request to the Publications Office, Smithsonian Institution, Washington 25, D.C.

### RIVER BASIN SURVEYS PAPERS PUBLISHED PREVIOUSLY

No. 1. Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1948, by Waldo R. Wedel. Bull. 154, pp. xv–xviii, 1–59, pls. 1–12, fig. 1. 1953.

No. 2. Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1949, by Waldo R. Wedel. Bull. 154, pp. 61–101, pls. 13–15. 1953.

No. 3. The Woodruff Ossuary, a Prehistoric Burial Site in Phillips County, Kansas, by Marvin F. Kivett. Bull. 154, pp. 103–141, pls. 16–28, figs. 2–3. 1953.

No. 4. The Addicks Dam Site:

    I. An Archeological Survey of the Addicks Dam Basin, Southeast Texas, by Joe Ben Wheat. Bull. 154, pp. 143–252, pls. 29–47, figs. 4–23. 1953.

    II. Indian Skeletal Remains from the Doering and Kobs Sites, Addick Reservoir, Texas, by Marshall T. Newman. Bull. 154, pp. 253–266, figs. 24–28. 1953.

No. 5. The Hodges Site:

    I. Two Rock Shelters near Tucumari, New Mexico, by Herbert W. Dick. Bull. 154, pp. 267–284, pls. 48–54, figs. 29–30. 1953.

    II. Geology of the Hodges Site, Quay County, New Mexico, by Sheldon Judson. Bull. 154, pp. 285–302, figs. 31–35. 1953.

No. 6. The Rembert Mounds, Elbert County, Georgia, by Joseph R. Caldwell. Bull. 154, pp. 303–320, pls. 55–56, figs. 36–40. 1953.

No. 7. Archeological Investigations in the Oahe Dam area, South Dakota, 1950–51, by Donald J. Lehmer. Bull. 158, 190 pp., 22 pls., 56 figs., 6 maps. 1954.

No. 8. Excavations in the McNary Reservoir Basin near Umatilla, Oregon, by Douglas Osborne. With appendixes by Marshall T. Newman, Arthur Woodward, W. J. Kroll, and B. H. McLeod. Bull. 166, 250 pp., 40 pls., 6 figs., 19 maps. 1957.

No. 9. Archeological Investigations in the Heart Butte Reservoir Area, North Dakota, by Paul L. Cooper. Bull. 169, pp. 1–40, pls. 1–12, figs. 1–2. 1958.

No. 10. Archeological Investigations at the Tuttle Creek Dam, Kansas, by Robert B. Cumming, Jr. Bull. 169, pp. 41–78, pls. 13–24. 1958.

No. 11. The Spain Site (39LM301), a Winter Village in Fort Randall Reservoir, South Dakota, by Carlyle S. Smith and Roger T. Grange, Jr. Bull. 169, pp. 79–128, pls. 25–36, figs. 3–4. 1958.

No. 12. The Wilbanks Site (9CK–5), Georgia, by William H. Sears. Bull. 169, pls. 37–45, figs. 5–9. 1958.

No. 13. Historic Sites in and around the Jim Woodruff Reservoir Area, Florida-Georgia, by Mark F. Boyd. Bull. 169, pp. 195–314, pls. 46–55, figs. 10–11. 1958.

No. 14. Six Sites near the Chattahoochee River in the Jim Woodruff Reservoir Area, Florida, by Ripley P. Bullen. Bull. 169, pp. 315–357, pls. 56–73, figs. 12–13. 1958.

No. 15. Historic Sites Archeology on the Upper Missouri, by Merrill J. Mattes. Bull. 179, pp. 1–24.

No. 16. Historic Sites Archeology in the Fort Randall Reservoir, South Dakota, by John E. Mills. Bull. 176, pp. 25–48, pls. 1–9, figs. 1–2, map 1. 1960.

No. 17. The Excavation and Investigation of Fort Lookout Trading Post II (39LM57) in the Fort Randall Reservoir, South Dakota, by Carl F. Miller. Bull. 176, pp. 49–82, pls. 10–18, figs. 3–14, map 2. 1960.

No. 18. Fort Pierre II (39ST217), a Historic Trading Post in the Oahe Dam Area, South Dakota, by G. Hubert Smith. Bull. 176, pp. 83–158, pls. 19–30, maps 3–4. 1960.

No. 19. Archeological Investigations at the Site of Fort Stevenson (32ML1), Garrison Reservoir, North Dakota, by G. Hubert Smith. (Introduction by Robert L. Stephenson and an appendix by Carlye S. Smith). Bull. 176, pp. 159–238, pls. 31–54, figs. 15–20, maps 5–6. 1960.

No. 20. The Archeology of a Small Trading Post (32MN1) in the Garrison Reservoir (Kipp's Post), South Dakota, by Alan R. Woolworth and W. Raymond Wood. Bull. 176, pp. 239–305, pls. 55–65, figs. 21–25, map 7. 1960.

No. 21. Excavations at Texarkana Reservoir, Sulphur River, Texas, by Edward B. Jelks. Bull. 179, pp. xiii–78, pls. 1–17, figs. 1–9. 1961.

No. 22. Archeological Investigations at the Coralville Reservoir, Iowa, by Warren W. Caldwell. Bull. 179, pp. 81–148, pls. 18–29, figs. 10–24. 1961.

No. 23. The McNary Reservoir: A Study in Plateau Archeology, by Joel L. Shiner. Bull. 179, pp. 151–266, pls. 30–46, figs. 25–40, maps 1–7. 1961.

No. 24. The Sheep Island Site and the Mid-Columbia Valley, by Douglas Osborne, Alan Bryan, and Robert H. Crabtree. Bull. 179, pp. 269–321, pls. 47–56, figs. 41–43. 1961.

No. 25. Archeology of the John H. Kerr Reservoir Basin, Roanoke River, Virginia-North Carolina, by Carl F. Miller. Bull. 182, 447 pp., pls. 1–96, figs. 1–65, maps 1–8. 1962.

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# FOREWORD

The seven reports which comprise the present volume of River Basin Surveys Papers pertain to work which was done in four reservoir areas in the Missouri Basin. Two of the reservoirs are located in North Dakota, one in Montana, and one in Kansas. The North Dakota reservoirs are the Garrison on the main stem of the Missouri River, located some distance above Bismarck, and the Jamestown on the James River above the town of Jamestown in the eastern part of the State. The Montana reservoir is the Tiber, located on the Marias River in the northwestern part of the State, and that in Kansas is the Lovewell on White Rock Creek, a tributary of the Republican River in the north-central part of the State. All four of the projects have been completed, and the areas where the archeological investigations were carried on are now inundated.

Four of the projects were in the Garrison Reservoir basin, and three of them are particularly interesting because they pertain to historic Indian locations. As a matter of fact, one of the three could virtually be called modern. Most of the work in the Garrison area was done in sites which were pre-White contact and older or in sites of the early historic period when the Indians were associated with or living adjacent to trading posts or military installations. The information obtained from Indian occupation areas which were contemporaneous with those of White origin but which gave little evidence of direct association throws interesting light on various aboriginal activities.

Mr. Metcalf, in the first paper, describes small sites in and about the Fort Berthold Reservation because it was thought that while most of these sites were too small to merit a full-scale investigation, they nevertheless provided a considerable amount of previously unreported data which should be made available. Some of the sites mentioned by Mr. Metcalf subsequently received additional attention and will be described in other papers. Most of those which he describes, however, will not be discussed elsewhere. His report adds to the general information of the Fort Berthold area. The second paper, by the same author, describes the investigations made at a single site, where a village was started by the Arikara in the spring of 1862 and was occupied only until the latter part of August of the same year, when raids by the Sioux forced its abandonment and the withdrawal of its occupants. Although the life of the community, which is known as Star Village, was of extremely short duration, it nevertheless provides information about changes which were taking place in house types and village patterns.

The article by Dr. Hartle describing the dance hall of the Santee Bottoms on the Fort Berthold Reservation is, strictly speaking, an architectural study and not archeological in nature. The building was still standing at the time the study was made, and there were numerous Indians living in the vicinity who had participated in ceremonies held in the structure. The building is of particular interest because it was the last example of that type of dance hall built and used in the Fort Berthold area. The place where it stood is now many feet beneath the waters of the Garrison Reservoir. The fourth paper in the Garrison series, that by Dr. Carling Malouf, is, more strictly speaking, an ethnohistorical study, but it was based on excavations in a former village site. The historical incidents which led to the establishment of Crow-Flies-High village and various things which took place there after it was occupied constitute an interesting sidelight on activities in that portion of North Dakota at that particular period. Dr. Malouf was fortunate in being able to obtain from some of the Indians still living in the vicinity and from documentary records items which bring to life activities in a native village at a time when many changes were takng place and the people were under considerable strain. Opportunities to make a study of that nature are not common and Dr. Malouf took full advantage of the situation. The fieldwork which he did was a cooperative project between the National Park Service and Montana State University. The other three projects in the Garrison Reservoir basin were under the direction of the River Basin Surveys, and the field parties were directed by regular staff members of the Missouri Basin Project.

Investigations at the Jamestown Reservoir began in 1946, when a preliminary reconnaissance was made of the area to be flooded by the project. The construction of the dam was delayed and it was not necessary to do further work in the area until the summers of 1952 and 1954 when the excavations reported by Mr. Wheeler were made. As a result of his studies, Mr. Wheeler concluded that the manifestations in the Jamestown basin represented a single aboriginal culture complex which he designated the Stutsman Focus. The material collected indicated seminomadic communities whose subsistence was based on a combination of horticulture, hunting, and food gathering. Also, these communities trapped eagles for ceremonial purposes. The pottery which they made is comparable to that found at various locations in central and southeastern North Dakota which has been ascribed to the Hidatsa Indians, and it is quite possible that the latter may have been responsible for the remains assigned to the Stutsman Focus. Certain items of trade material attributable to European origin and some late pottery types from other complexes which were present suggest that the Stutsman Focus belongs in the early historic period and may well date from A.D. 1750 or 1770 to 1800. Prior to the investigations by the River Basin Surveys, virtually nothing was known of the archeological manifestations in that immediate area.

The investigations in the Tiber Reservoir basin in Montana were not as satisfactory as might be desired. The original surveys were made in the late summer of 1946 and some excavating was done during the summer of 1950. Because of insufficient funds it was not possible to continue that project until the summer of 1955. In the meantime heavy floods had swept down the river and washed away many of the sites which had been designated for further investigation. By the time that Mr. Miller went there in June 1955, practically all that remained was one large site where there had been some digging in 1950. Mr. Miller tested a number of locations in that site where it appeared that archeological evidence might be obtained. On the basis of what he found and the material collected 5 years earlier, it appears that the Tiber area was mainly occupied by intermittent groups of hunters from communities located elsewhere. The major game animal was the bison, and the bones representing that animal indicate a transition between one of the older forms and modern bison, with the implication that there was appreciable antiquity to some of the remains occurring there. Unfortunately there is not sufficient evidence to identify the hunters with some of the groups which were occupying portions of Montana in the surrounding area. However, it would appear from the limited number of potsherds recovered that the later stages of the culture were related to a Woodland variant existing in late prehistoric times.

The presence of archeological manifestations in the Lovewell Reservoir area was known for some time prior to the investigations by the River Basin Surveys. In 1935 George Lamb, an interested local amateur, did some preliminary digging in two of the more important sites. Two years later a party under the sponsorship of the Nebraska State Historical Society, directed by Paul Cooper, carried on excavations at one of the sites. He was assisted by Mr. Lamb. A survey of the entire reservoir basin was made in 1951 by Franklin Fenenga for the River Basin Surveys. Then, in the summer of 1956, a River Basin Surveys party undertook more intensive investigations in the area. Further excavations were made in the village remains previously tested by Mr. Lamb and Mr. Cooper, and digging was carried on at several others which until then were known only by their surface indications. Mr. Neuman, who was in charge of the 1956 work, in addition to digging extensively in three village and one mound site, also collected material from all other known archeological locations in the basin. The results of Mr. Neuman's studies in the field form the basis for his report which is River Basin Surveys Papers No. 32. In his description and conclusions pertaining to the village and camp manifestations occurring there, he includes the data which were collected by Mr. Lamb and Mr. Cooper. He concludes that the remains in the area represent the Late Ceramic Period of the Central Plains and that the date of occupancy was in the late 17th century. The mound which was excavated falls into a somewhat earlier period and probably dates at about A.D. 1200. The work of Mr. Neuman and his predecessors has provided good general knowledge about the Indian cultures in that part of Kansas.

FRANK H. H. ROBERTS, JR.,
*Director, River Basin Surveys.*

SMITHSONIAN INSTITUTION
Bureau of American Ethnology
Bulletin 185

# River Basin Surveys Papers, No. 26

# Small Sites on and about Fort Berthold Indian Reservation, Garrison Reservoir, North Dakota

By GEORGE METCALF

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# SMALL SITES ON AND ABOUT FORT BERTHOLD INDIAN RESERVATION, GARRISON RESERVOIR, NORTH DAKOTA[1]

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By George Metcalf

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## INTRODUCTION

The Inter-Agency Salvage Program was set up in 1945 as a means by which the salvage of information from archeological sites threatened with destruction by the initiation of federal reservoir construction could be most effectively conducted. It was based on a memorandum of understanding between the Smithsonian Institution and the National Park Service and on agreements between the National Park Service, the Bureau of Reclamation, and the Corps of Engineers. With funds made available by the Bureau of Reclamation, through the National Park Service, the River Basin Surveys was organized by the Smithsonian Institution, to locate, record, and evaluate sites endangered by the water-control projects and to excavate at such key sites as available time and funds would allow. This organization was divided into groups on the basis of affected watersheds, and of these the Missouri Basin Project was one.

The archeological reconnaissance of the Garrison Reservoir was initiated by Marvin F. Kivett in the early summer of 1947 as a project of the River Basin Surveys. This phase of the work consisted of locating, listing, and evaluating all sites likely to be lost through construction activities while the dam was being built, and by flooding and wave action when the reservoir filled. In Garrison Reservoir a total of 70 sites were thus recorded. In 1947, however, it was impossible to obtain permission to examine the Fort Berthold Indian Reservation for sites. This permission was granted in 1950, and at that time the writer and an assistant, detached from the field unit engaged in excavating the Rock Village site (32ME15),[2] were detailed to finish the survey of the Garrison Reservoir area. A period of 7 weeks was spent on this assignment, and 55 new sites were recorded.

---

[1] Submitted May 1955.

[2] Site designations used in this report are trinomial in character, consisting of symbols for State, county, and site. The State is indicated by the first number, according to the position of the State name in an alphabetical list of the United States; thus, for example, 48 indicates Wyoming, 32 indicates North Dakota. Counties are indicated by a two-letter abbreviation; for example, ME for Mercer County, DU for Dunn County, etc. The final number refers to the specific site within the indicated State and county.

In 1951 the writer, accompanied at various times by G. Hubert Smith and Lee Madison, spent an additional month on reconnaissance in the area, recording 27 more sites and testing 2 of those previously recorded.

Beginning with the field season of 1950, several institutions carried on archeological investigations in the Garrison Reservoir area. In that year a Missouri Basin Project party, under G. Ellis Burcaw, conducted large-scale testing operations at the Rock Village site (map 1), a late, fortified earthlodge village which is believed to be assignable to the Hidatsa. At the same time the State Historical Society of North Dakota, under a cooperative agreement with the National Park Service, sent out a party under the leadership of Glenn Kleinsasser and began the investigation of Like-a-Fishhook Village (32ML2), the last earthlodge village of the Mandan, Hidatsa, and Arikara.

In 1951 a Missouri Basin Project party, under Donald D. Hartle, continued the excavation of Rock Village and carried out large-scale testing operations at Star Village (32 ME16), the last site to be occupied by the Arikara before joining the Mandan and Hidatsa at Like-a-Fishhook Village in 1862. Another party from the same organization, under G. Hubert Smith, investigated the site of Fort Stevenson, a frontier army post which later served as an Indian school. During that year the State Historical Society of North Dakota, again under an agreement with the National Park Service, continued its investigations at Like-a-Fishhook Village, the field party being under the direction of James H. Howard. In addition, a University of Montana–National Park Service party, led by Carling Malouf, investigated three camp sites in the area, 32ME43, 32ME54, and 32ME55 (map 1).

The summer of 1952 saw parties from the same three institutions again working in the area. Donald D. Hartle, of the Missouri Basin Project, spent a few weeks digging a deeply buried, artifact-bearing level beneath the Rock Village site, after which his party carried out extensive excavations at the Nightwalkers Butte in the Bull Pasture (32ML39) in a postcontact but undocumented site (map 1). A party under G. Hubert Smith uncovered the major portion of the remains of the second Fort Berthold (originally Fort Atkinson), which in turn had been a trading post, Army post, and Indian agency. Late in the season the two Missouri Basin Project parties joined forces and tested the Grandmother's Lodge site, 32ME59, reputedly the dwelling of one of the Mandan supernaturals. James H. Howard, leading a party from the State Historical Society of North Dakota, under a cooperative agreement with the National Park Service, continued the excavation of Like-a-Fishhook Village. Malouf, again heading a

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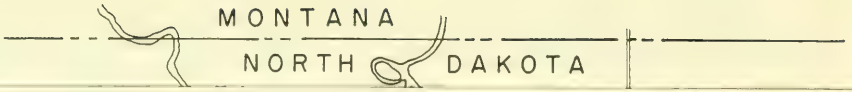
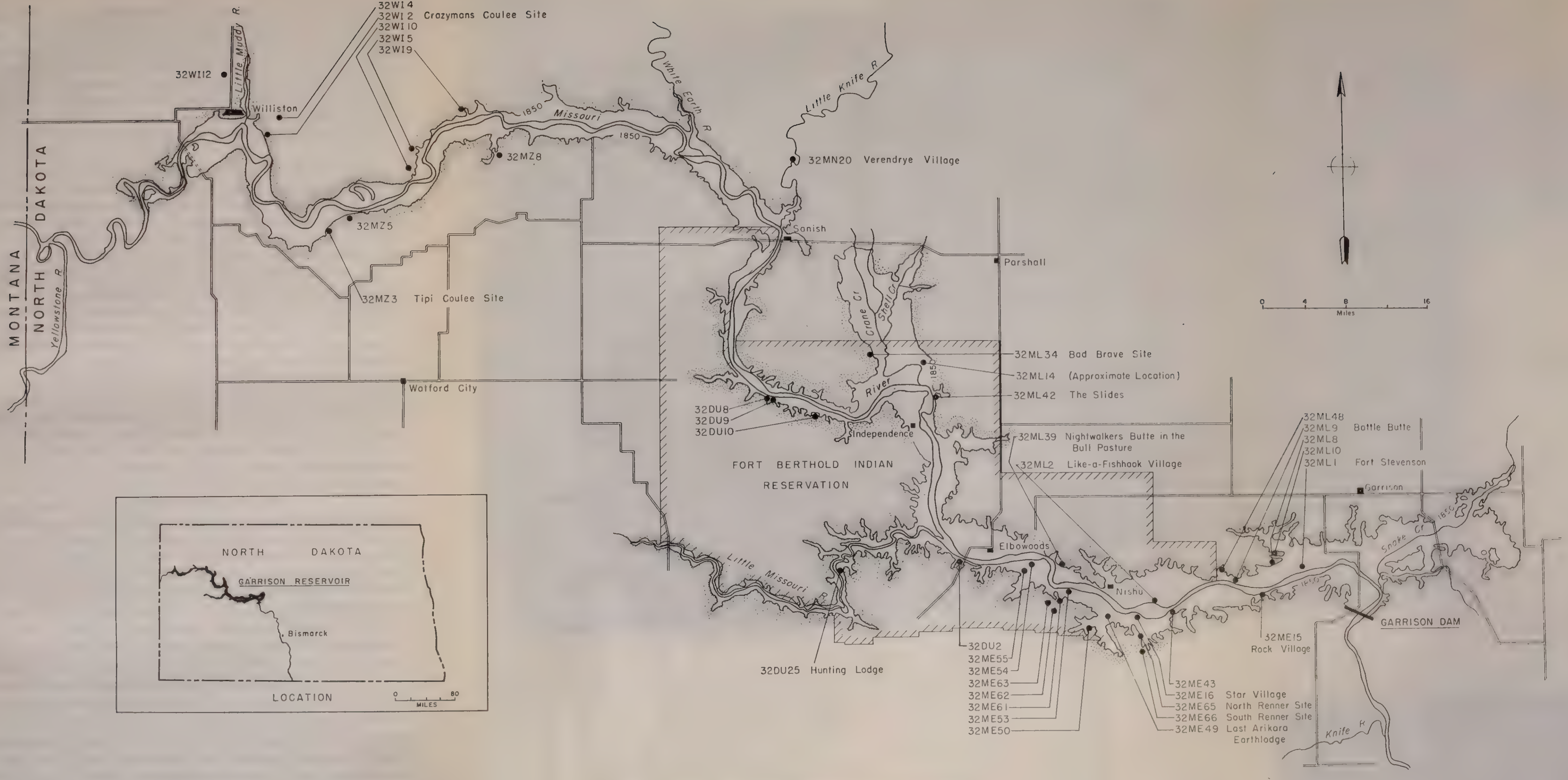

MONTANA
NORTH DAKOTA


32WI4
32WI2 Crazymans Coulee Site
32WI10
32WI5
32WI9
32WI12
Little Muddy R.
Williston
1850
Missouri
1850
White Earth R.
Little Knife R.
32MN20 Verendrye Village
32MZ8
32MZ5
32MZ3 Tipi Coulee Site
MONTANA
NORTH DAKOTA
Yellowstone R.
Sanish
Parshall
Watford City
Crane Cr.
Shell Cr.
River
1850
32ML34 Bad Brave Site
32ML14 (Approximate Location)
32ML42 The Slides
32DU8
32DU9
32DU10
Independence
32ML39 Nightwalkers Butte in the Bull Pasture
32ML2 Like-a-Fishhook Village
FORT BERTHOLD INDIAN RESERVATION
32ML48
32ML9 Battle Butte
32ML8
32ML10
32ML1 Fort Stevenson
Garrison
Elbowoods
Nishu
Snake Cr.
1850
Little Missouri R.
GARRISON DAM
32DU25 Hunting Lodge
32DU2
32ME55
32ME54
32ME63
32ME62
32ME61
32ME53
32ME50
32ME43
32ME16 Star Village
32ME65 North Renner Site
32ME66 South Renner Site
32ME49 Last Arikara Earthlodge
32ME15 Rock Village
Knife R.
0 4 8 16
Miles
NORTH DAKOTA
GARRISON RESERVOIR
Bismarck
LOCATION
0 80
MILES

Map 1.—Sites in the Garrison Reservoir area, North Dakota.

University of Montana–National Park Service party, investigated a number of sites in the vicinity of Sanish, N. Dak.

Owing to a cut in appropriations it was impossible for the Missouri Basin Project to send out any parties in 1953. The only archeological investigations in the reservoir area during that season were carried out by Alan R. Woolworth, with a small party from the State Historical Society of North Dakota, who continued the work begun by the two Missouri Basin Project groups at the site of Grandmother's Lodge (32ME59).

In 1954 the State Historical Society of North Dakota and the Missouri Basin Project had a small joint party at Like-a-Fishhook Village and the adjacent area, the party being headed by Woolworth and Smith. The Missouri Basin Project party was forced to return to headquarters in midsummer, after which Woolworth finished the excavation of Grandmother's Lodge (32ME59) and excavated the site of Fort Kipp (32MN1), an early fur-trading establishment.

Reports on the sites investigated by the various agencies have been completed or are in preparation. Many small sites, often of some interest but too small to merit a full-scale investigation, were present in the area, and it is to some of these that the following paper is devoted. Although these sites are small and not individually noteworthy, collectively they have provided a considerable amount of previously unreported data. It is felt that as many as possible of these available data bearing on the pre-White occupation of the area should be placed on record, and it is to this end that the present paper has been prepared. The sites scattered along the 200 miles of the Missouri River above Riverdale, N. Dak., are now many feet under the waters of the Garrison Reservoir, and the opportunity for archeological investigation in the area has ceased to exist.

The following report is based primarily upon data collected for the Missouri Basin Project, River Basin Surveys, Smithsonian Institution, during the latter half of the 1950 field season and during the summer and fall of 1951. To this material has been added information on sites above and below the Fort Berthold Reservation that was gathered for the same organization by the survey party under Kivett in 1947. Data on the Arikara ceremonial lodge at 32ME16 were gathered by Donald D. Hartle, Missouri Basin Project archeologist; those on the ceremonial structure at 32ML2, by Glenn Kleinsasser for the State Historical Society of North Dakota.

It is impossible to mention individually or to express adequately my thanks to all who have helped in the collection of the data and aided in preparing this report. However, I wish particularly to thank Ralph Vrana, G. Hubert Smith, and Lee G. Madison, who at different times formed part of the reconnaissance parties. I am particularly grateful to those officials of the U.S. Indian Service who were stationed at the Elbowoods Agency, N. Dak., for invaluable assistance rendered by them; and to the Tribal Council of the Three Affiliated Tribes for permission to investigate the archeological resources of the reservoir. I particularly wish, also, to thank Pete Star, John Fredericks, Donald Goodbird, Hans Walker, Joe Eagle, David Grant, and Pat Harney for information regarding sites considered in the following pages.

It is a pleasure to acknowledge my indebtedness to the State Historical Society of North Dakota for its permission to use data collected in 1950 at the site of Like-a-Fishhook Village by Glenn Kleinsasser. My particular thanks are due to Russell Reid and Alan W. Woolworth, of that organization, who went to great pains to make available maps, notes, and photographs. Thanks are due also to Mrs. Angela Fiske, Fort Yates, N. Dak., for permission to use a photograph of the last Arikara lodge, made by the late Frank Fiske. To Thomas Kehoe, at that time curator of the Museum of the Plains Indian, Browning, Mont., I am indebted for permission to use some of his unpublished material.

To Waldo R. Wedel, Clifford Evans, and Betty Meggers, United States National Museum; Robert L. Stephenson and G. Hubert Smith, of the Missouri Basin Project, Lincoln, Nebr.; Marvin F. Kivett, Nebraska State Historical Society; and to Russell Reid and Alan W. Woolworth, State Historical Society of North Dakota, I am deeply grateful for encouragement, as well as for constructive criticism and aid in the preparation of this report. Finally, I am deeply appreciative of the aid given by the laboratory staff of the Missouri Basin Project who helped in many ways—with advice, in photography, in drafting, and in typing manuscripts.

## THE AREA

Garrison Dam, a project of the Corps of Engineers, United States Army, is located on the Missouri River immediately west of the town of Riverdale and a few miles southeast of the town of Garrison, N. Dak., from which it takes its name (map 1). It is an earth-fill structure with a height of 210 feet above streambed and a crest length of slightly over 2 miles. At full pool, an area of about 300,000 acres will be inundated, and the impounded waters will extend to the west and north up the Missouri Valley to a point close to the Montana line, a distance of 200 miles. The filling of the reservoir necessitated the removal of three towns, Elbowoods, Van Hook, and Sanish, as well as the construction of a dike to protect the city of Williston. Arms of the reservoir will reach up the valleys of Beaver Creek, Lucky Mound Creek, and the Little Knife and Little Missouri Rivers, the lower course of the Little Missouri River being drowned for approximately 25 miles. A large embayment will be formed at the mouth and lower course of Shell Creek. Purposes of the dam are flood control, irrigation, and power development.

Fort Berthold Indian Reservation lies in the west-central part of North Dakota and comprises parts of Mercer, Dunn, Williams, McLean, and Mountrail Counties. It lies near the lower end of the reservoir area and is divided into two parts by the Missouri River, which here flows from northwest to southeast. With the filling of the reservoir, the reservation will be divided into five segments.

This reservation was established by Executive Order, April 12, 1870, for the use of the Hidatsa, Mandan, and Arikara tribes, now officially known as the Three Affiliated Tribes. As originally established it ran "from a point on the Missouri River 4 miles below the Indian Village (Berthold), in a northeast direction 3 miles (so as to include the wood and grazing around the village); from this point a line running so as to strike the Missouri River at the junction of the Little Knife River with it; thence along the left bank of the Missouri River to the mouth of the Yellowstone River, along the south bank of the Yellowstone River to the Powder River, up the Powder River to where the Little Powder River unites with it; thence in a direct line across to the starting point 4 miles below Berthold." (Kappler, 1904, vol. 1, pp. 881–883). This area was later reduced until, just prior to construction of the Garrison Dam, it contained some 643,000 acres. It has now been reduced to an area of less than 500,000 acres by the loss of the acreage which will be inundated.

The three tribes residing on this reservation were semisedentary, earth-lodge-building agriculturists when contacted by the first White explorers to reach the area. At the time of Lewis and Clark, the Arikara villages were just below the State line in South Dakota, while the Hidatsa occupied three villages at the mouth of the Knife River, with the Mandan immediately below them. After the great smallpox epidemic of 1837—an epidemic which virtually exterminated the Mandan—the Hidatsa appear to have experienced a period of indecision and unsettled wandering. This terminated in 1845 when they began the construction of a new village on the left bank of the Missouri. Here they were soon joined by the remnant of the Mandan. At this village, which was named "Like-a-Fishhook" after the bend of the river in which it was situated, a trading post was built by the American Fur Co. and named Fort Berthold.

The Arikara, moving upriver, occupied the abandoned site of the Mandan village near Fort Clark and lived there from about 1839 until 1861, when a growing shortage of timber coupled with continual harassing raids by the Dakota forced them to move upstream again. In 1862 they began the construction of two villages on the right side of the river across from Fort Berthold, but after a Dakota attack in August of that year, they abandoned the sites and settled beside the

Hidatsa-Mandan at Like-a-Fishhook Village (Report of the Commissioner of Indian Affairs, 1862, p. 194). From 1862 until the middle 1880's, when they were settled upon individual allotments, the three tribes occupied one large village.

Before the recent wholesale removal of the people from the valley under the threat of the rising waters, the Arikara occupied the east end of the reservation on both sides of the river, extending upstream to a point between the Beaver Creek and Red Butte schools on the right side of the stream and to above Nishu school on the opposite side. The Mandan and Hidatsa are so extensively intermarried that it is doubtful if today a "full-blood" Mandan remains, but in 1950 the group living on the south side of the Missouri, above the Arikara and extending to about the mouth of the Little Missouri, tended to identify themselves as such.

## ENVIRONMENTAL BACKGROUND

Western North Dakota, in which the Garrison Reservoir and Fort Berthold Reservation are located, lies in the High Plains area. Basically the region is a high, level plain through which the various streams have carved deep, steeply walled valleys for themselves. The valley of the Missouri varies in width here from less than a mile to an extreme of over 3 miles. The lower land bordering the stream is subject to annual overflow and this flood plain is covered generally with a dense growth of timber, cottonwood, ash, elm, and willow predominating. The valley walls are rugged, highly dissected, and cut regularly with drainage ways which frequently extend for miles into the uplands. It is not uncommon to find a badland type of terrain of variable extent along the valley walls; the Little Missouri River flows through badlands for much of its length. In spite of its rugged nature, the hilly section which divides the level upland from the valley floor carries a good cover of grass, the coulee bottoms show small groves of ash and elm, and scattered junipers are found on the slopes of the badland buttes and canyons. The area is utilized for cattle range.

Between the valley walls and the flood plain bordering the stream, lies a level to gently sloping terrace. Although highly variable, this averages perhaps a half mile in width and is generally wider on the east and north sides of the valley than on the west and south. A great deal of this terrace is under cultivation, with wheat, oats, and barley the usual crop.

The heavily timbered flood plain is utilized to a limited extent for grazing and, in the higher parts, for growing hay. For a number of years preceding the flooding of the area its timber was exploited to a limited extent by local sawmill operations.

Wild fruits are abundant. On the slopes of the high terrace, on the drier parts of the flood plain, in the canyon floors, and along the edge of the uplands grow many thickets of wild plum bushes, while chokecherries are present in amazing abundance. Juneberries (sarviceberry, serviceberry, or saskatoon) are found along the drier parts of the flood plain and on the terrace slopes. Wild grapes are present, as are wild currants, and the tiny wild strawberry is found in the shaded lowlands. Clumps of buffaloberries, known locally as bullberries, are present everywhere except on the uplands.

East of the Missouri River, the rolling, treeless uplands between the valleys are largely devoted to the growing of crops of rye, wheat, oats, barley, and flax. Some corn is grown despite the shortness of the frost-free season. There is less cultivation west of the river, the short growing season combining here with a rapid drop in the amount of annual rainfall to make agriculture much more hazardous than stockraising. For this reason the country west of the Missouri is more sparsely populated than the eastern side, and great stretches of open grassland are still to be found in which the sight of an occasional antelope brings no surprise.

Formerly this country was in the heart of the bison range. Deer and antelope were present in great numbers, with elk and bear to be found along the streams, and with mountain sheep, mule deer, and mountain lion present in the badlands. Today the white-tailed deer are not uncommon in the flood-plain thickets, while such small game as rabbits, grouse, prairie chicken, and pheasants are locally abundant. Ducks and geese are found on the rivers in great numbers during the seasonal migrations, and many ducks nest in the numerous small lakes and ponds which dot the uplands east of the Missouri.

Most of the furbearers—wildcat, coyote, beaver, skunk, muskrat, badger—that drew the first wave of white men to the country are still present although in sadly reduced numbers. Mink and raccoon are rare, and the otter and wolf are extinct in the State.

The semiarid climate of west-central North Dakota is cool and bracing, characterized by long, cold winters and short, dry summers. Temperatures as low as −56° F., with a high of 112° F. represent the extremes recorded at Elbowoods, the site of the Fort Berthold Agency. The average annual precipitation as recorded at the same point is 15.21 inches, with over half of this falling as rain during the months of May, June, and July. The frost-free growing season averages about 120 days. Although tornadoes are unknown, high winds are usual, spring and fall being particularly windy seasons. Prevailing winds are from the west.[3]

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[3] Climatic data is summarized from "Climate and Man," 1941 Yearbook of Agriculture. U.S. Dept. Agriculture, Washington, D.C.

## PREVIOUS WORK IN THE AREA

Prior to 1950 no controlled archeological excavation had been done along the Missouri River in North Dakota, above the site of the Garrison Dam. Surveys of the area had been carried out at various times from 1908, when A. B. Stout mapped sites along the river for the State Historical Society of North Dakota, until the late 1930's, when Thad C. Hecker made a reconnaissance of the Missouri River for the same organization. The Hecker survey extended northward from the South Dakota line to the south side of the Fort Berthold Indian Reservation, and on the basis of earlier work (Will, 1924), a few sites were listed above that point in the published report (Will and Hecker, 1944).

Although it had received little attention from archeologists prior to 1950, ethnologists have found the area of interest from the time of Lewis H. Morgan until today. The work of the late Gilbert Livingstone Wilson (1917, 1924, 1928, 1934) along with that of Washington Matthews (1877), Robert H. Lowie (1913, 1917, 1919), and Frances Densmore (1923) forms a firm base for the study of the Hidatsa. Will and Spinden (1906), Lowie (1913, 1917), Densmore (1923), and, more lately, Bowers (1950) have published studies of the Mandan. There is less published material on the Arikara, but much that remains still unpublished has been gathered on that group.

The history of the three tribal groups and the changes occurring within their cultures are documented for the period of White contact by the records of explorers, travelers, traders, soldiers, and missionaries. That record has now been supplemented by archeological data obtained in the years 1950–54 by the Missouri Basin Project of the Smithsonian Institution and cooperating State agencies working under agreements with the National Park Service. Such information as remains in the ground is now lost forever beneath the waters of the Garrison Reservoir.

## THE LAST ARIKARA EARTHLODGE AND A COMPARISON WITH SOME EARLIER STRUCTURES

During the course of the 1950 reconnaissance a large ring mound indicating the presence of a former earthlodge was noted in the sod of a small, unplowed enclosure immediately west of the Beaver Creek Day School. Information obtained from local residents suggested that this was the site of the last Arikara earthlodge, a suggestion which later research tended to confirm.

It was impossible to obtain an absolutely accurate dating for the structure. "I think it was built about 1908, and it was still standing when I came home from the army in 1919, but it was torn down soon after that," said one informant.[4] In 1951, during the excavation of a nearby site, we were often visited by groups of local residents, and several attempts were made to obtain from them the exact dates for the building and destruction of this lodge. Although many of them remembered the structure, none could furnish the desired information, but one man volunteered to obtain it from older people. Some days later he handed us a slip of paper upon which was written "Mud Lodge completed, May, 1907. Mud Lodge destroyed fall of 1918." Later we were told by a White resident of a neighboring town that the structure was pulled down and the logs from it sold at public auction "about 1918 or 1919."[5]

George Will, student of Mandan ethnology and author of several papers on North Dakota archeology, stated that he had been inside the lodge when it was in good condition and that he had attended ceremonies which were held in front of it. He believed this to have been in 1909. Wilson mentions an "Arikara dance lodge" as one of seven earthlodges still in use on the reservation in 1908 (Wilson, 1934, p. 375).

In 1908 when a survey party from the State Historical Society of North Dakota was engaged in mapping a village site to the east of Beaver Creek, the party chief, A. B. Stout, made the following entry in his notes: "The band in this corner of the reservation . . . . have reverted to their early religion and have built a dance lodge of the old type. It stands now near the mouth of Beaver Creek, is an earthen and sod-covered building, circular, about 75 feet in diameter with door facing eastward. In front of door some 30 feet is the stone . . . . While we were there the Indians were getting ready for a big dance, had been billed to give it by the Curtis party . . . ." (Field Notes, A. B. Stout, 1908. Files of the State Historical Society of North Dakota).

The testimony of Stout and Wilson thus seems to verify the information on the note which was given to us and makes it probable that the lodge was built in 1907 and pulled down in 1918 or 1919.

The lodge stood upon the high terrace on the east (right) side of Beaver Creek, a small tributary of the Missouri which enters that stream from the south. The site, 32ME49 in the files of the Missouri Basin Project, is in Mercer County, N. Dak., 15 miles north and 5 miles west of the town of Beulah, in the NW¼ sec. 5, T. 146 N., R. 88 W., and is 500 feet southwest of the Beaver Creek Day School (map 1). The ring-mound marking the site of the lodge was very distinct. The posts which supported the roof and walls had been pulled or dug out, and depressions 2 feet in diameter marked their former position. The positions of the fireplace and of the altar were marked respectively by a depression and a mound, upon the last of which grew a clump of sagebrush. The position of the entryway was indicated by a break in the ring-mound on the east side. The various features were so plainly marked on the surface that the writer, accompanied by G. Ellis Burcaw, later returned to the site and made a map (fig. 1) of the floor plan from the surface indications—luckily, as it happened, for the site was placed under cultivation the following spring.

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[4] Pete Star, personal interview August 24, 1950.

[5] William Christman, Hazen, N. Dak. Personal interview, July 1951. Christman stated that he attended the auction and bought some of the logs.

The ring-mound, 6.5 to 11 feet in width, measured 72 feet in diameter from crest to crest, and its height varied from 11 to 18 inches. The centrally located fireplace was, from surface indications, a depression 8 inches deep and between 6 and 7 feet in diameter. A test showed it to be underlain by deeply reddened earth, and it still held a small amount of white ash among which were a few burned bones.

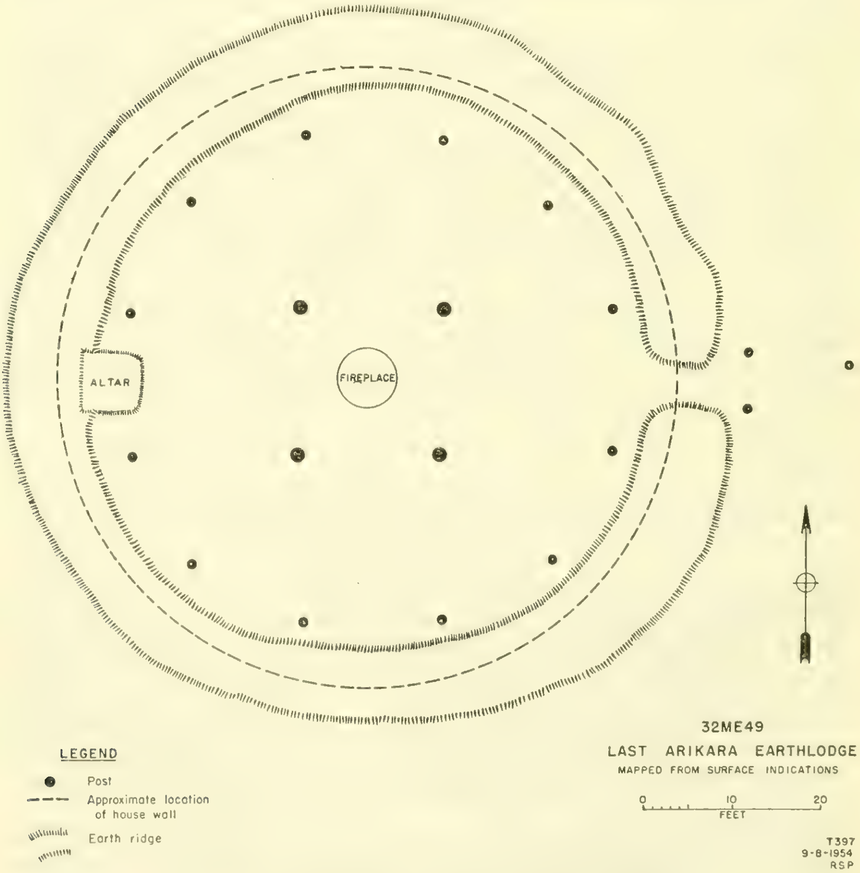
ALTAR
FIREPLACE
LEGEND
Post
Approximate location of house wall
Earth ridge
32ME49
LAST ARIKARA EARTHLODGE
MAPPED FROM SURFACE INDICATIONS
0
10
20
FEET
T397
9-8-1954
RSP

Figure 1.—Floor plan of the last Arikara earthlodge.

Four large posts, at a radius of between 11 and 11.5 feet from the center of the fireplace and enclosing an area about 16 feet square, had formed the central foundation of the structure. Beyond these were 16 postholes arranged in a circle 56.5 feet in diameter. These were spaced rather regularly on a formula of 14 feet, 14 feet, 16 feet, and repeat, starting with the first post south of the entrance. This would leave a space of 8 feet between the outer post ring and the center of the ring-mound, which would indicate walls with a 45° slope if it is assumed that the leaner butts were at the approximate center of the mound and that the posts of the outer ring were 8 feet in height. Photographs, however, show that the wall was much steeper (pl. 1), indicating that the crest of the ring-mound was beyond the position of the leaner butts. The position of the altar was indicated by a flat-topped mound a foot in height, 6 feet wide and 10 feet long, which projected from the wall toward the fireplace, opposite the entrance.

The eastward opening entrance passageway was indicated by a narrow gap in the mound and there was but little else to mark its former presence. Three depressions marking posthole positions were found, but only a few heaps of earth marked the sides. Pictures taken in 1908 show very little earth present on the top of this feature (Curtis, 1909, pl. 157). These pictures show that each side of the entrance was formed by placing small poles close together with the butts on or in the ground and with the tops against a horizontal beam parallel with the long axis of the entryway. On the outside of these, five long poles have been fastened horizontally. The front pair of vertical support posts is plainly shown, and these carried the horizontal side beams which rest on top of the posts and not in forks. On top of these side beams are placed cross-members of hewn or sawn timbers to form the roof. Earth covered the top but was not piled against the sides, explaining why only the faintest traces of mounds remained to mark the sides of the entrance passage.

As indicated by the gap in the ring-mound and by the position of the three visible postholes, the entranceway extended outward 18 feet from the crest of the encircling mound. It measured 6 feet 4 inches between the one pair of oppositely placed postholes, and the position of the remaining posthole beyond the pair suggests that the entrance narrowed toward the outer end.

Inside the earthen ring the surface was somewhat uneven, with a much lower and narrower ring-mound present at a point midway between the center posts and the outer ring of support posts. Except for this low ring the surface level varied from an approximate equality with that outside to 7 inches above it. A few tests indicated that the fill above the floor was shallow, averaging no more than 6 to 8 inches in depth. Evidently there was no excavation for the floor, although surface inequalities were probably scraped away, and the use to which it was subjected over a period of 10 or 12 years probably resulted in lowering the floor to some extent.

The structure is said to have been built as a community center, a place to hold dances and ceremonies, and in order that the younger people might learn how an earthlodge was built. We were not told why it was pulled down but received the impression that it was falling into disrepair through the weakening of the timbers by decay. The main timbers, however, must have been sound if, as the Christman interview suggests, they were sold at auction.

It is possible to compare this Beaver Creek lodge with the last two ceremonial lodges built by the Arikara while still living as villagers before being scattered upon individual allotments. The most recent of these is that excavated by a State Historical Society of North Dakota–National Park Service party under the direction of Glenn Kleinsasser at the site of Like-a-Fishhook Village during the summer of 1950.[6]

The lodge stood in the northwest part of the village, its former location being marked by the most prominent ring-mound present. The Arikara occupied a separate section of the village, and the ceremonial lodge appears to have been located at the approximate center of their quarter. A large open space lay in front of it, in which no houses had been built. The village site has never been under cultivation and has become well sodded in the approximately 65 years since it was abandoned. A number of depressions in the sod, inside the ring-mound, believed at first to mark the presence of subfloor storage features, proved to mark the positions of the large postholes into which the earth had settled as the post butts decayed.

Upon excavation the floor showed the usual earthlodge pattern (fig. 2) : a central fireplace, four large postholes arranged to form a square about it, and the holes for an outer circle of large posts that had carried stringers against which slabs or poles had been leaned to form the walls. A covered vestibulelike entrance was indicated, but no altar was found. Posthole positions at the back of the lodge suggest that such a feature was present but was not recognized during excavation.

The central fireplace, which measured 81 inches north–south by 72 inches east–west, was a simple, basin-shaped pit 21 inches in depth, filled and overflowing with white ash, the ashes extending to a height of 2.5 inches above floor level. The earth beneath showed the effects of fire to a depth of 6 inches.

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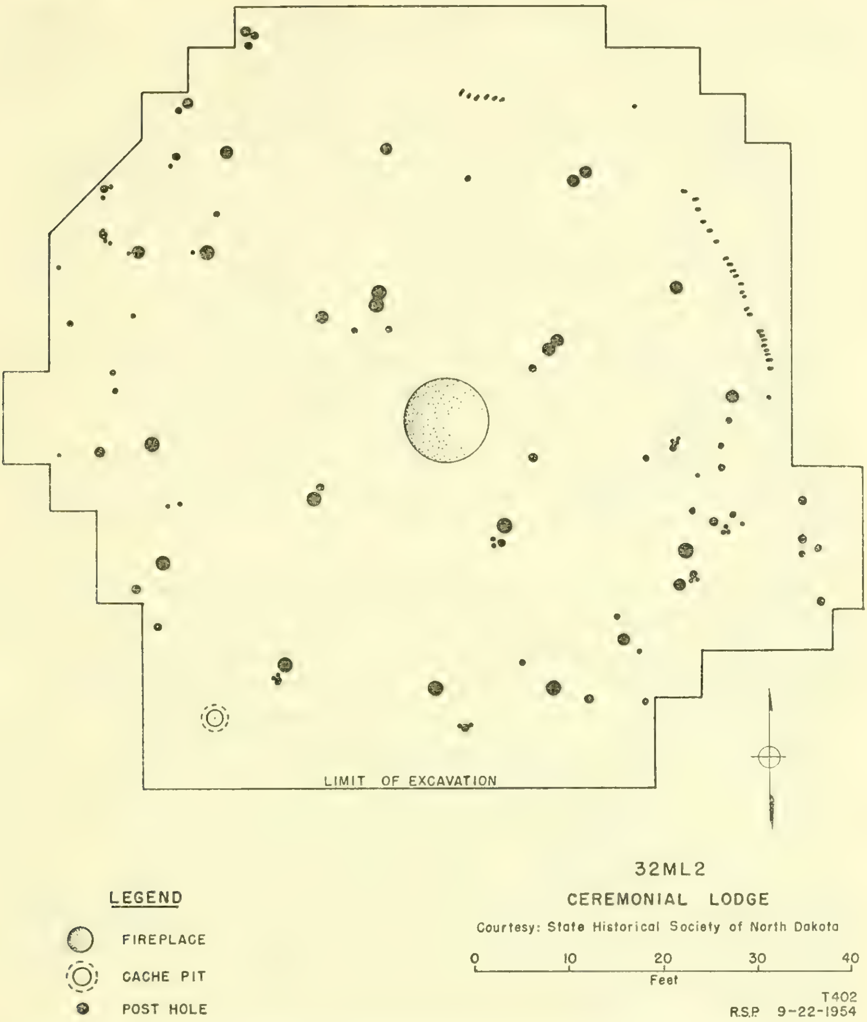
[6] Field notes and floor plans of this lodge, as well as a photograph of it made by the pioneer photographer S. J. Morrow about 1870, have been made available by the State Historical Society of North Dakota. Description of the lodge is based upon these data.


LIMIT OF EXCAVATION
32ML2
CEREMONIAL LODGE
Courtesy: State Historical Society of North Dakota
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10
20
30
40
Feet
T402
R.S.P 9-22-1954
LEGEND
FIREPLACE
CACHE PIT
POST HOLE

FIGURE 2.—Floor plan of Arikara ceremonial lodge at Like-a-Fishhook Village, 32ML2.

Four postholes (or pairs of postholes) were present at a distance of from 14 to 17 feet from the center of this hearth, and formed the corners of a rectangle about 20 feet square. The secondary set of roof supports formed a circle at an average distance of about 30 feet from the center of the fireplace. Actually this distance was not uniform, these postholes being found at distances ranging from 28 to 34 feet.

Several series of leaner butts were found at a distance of approximately 6 feet beyond the secondary posts, making possible an estimate of about 75 feet as the inner diameter of the structure. The ring-mound measured 80 feet in diameter from crest to crest.

The center postholes measured from 13 to 19.5 inches in diameter, while those in the secondary ring ranged from 11 to 19 inches with an average diameter of nearly 16 inches. Post butts did not always fill the holes, being as much as 5 inches smaller in some instances. Tighteners had been driven down beside some of them, billets of wood replacing the bison bones sometimes found serving this purpose in earlier lodges. There is some confusion in the notes regarding the depth of postholes, but apparently the center posts were planted deeper than those of the outer row, the holes for which varied from 14 to 30 inches in depth. The leaners ranged from 2 to 8.5 inches in diameter but in general measured about 4 to 5 inches.

The data regarding the entrance present a confusing picture. There is a strong suggestion in the excavated evidence that the entrance was somewhat shorter than that of the later lodge at Beaver Creek and that it projected only a short distance beyond the wall of the lodge. The Morrow photograph, however, shows an entranceway of approximately the same proportions as those of the Beaver Creek structure (pl. 2, *a*).

The floor was slightly saucer-shaped, being deeper at the center than at the edges. There was no suggestion that it had been intentionally excavated below the surface of the ground, its depth below the present surface being no more than might reasonably be expected as the result of the wear incident to 20 years of use. A small pocket cache which was present near the fireplace measured 6 inches in diameter at the mouth but expanded to 13 inches by the time bottom was reached at a depth of 15.5 inches. Except for its earth fill it contained only a piece of cloth which had been folded several times.

The depth of fill above the floor varied from ½ inch directly above the ash at the center to as much as 21 inches at the edges and was composed of a lighter-colored, less compact soil than that forming the floor. A good yield of artifacts came from this fill, but the cultural remains from the floor were rather scanty.

Although the dates for the erection and destruction of this lodge cannot be given with pinpoint accuracy, it is possible to give them rather closely. The Arikara moved to this site following an attack on their village across the river (32ME16) in August 1862 and abandoned it at some time between 1880 and 1890. In 1950 an Arikara informant 65 years of age said that he was born at Like-a-Fishhook Village but had been told that only a few people were living there at that time. Apparently the village was largely abandoned by 1886.

During the last 2 months of the 1951 field season a Missouri Basin Project party under Donald D. Hartle excavated a number of lodge floors at the Star Village site (32ME16, map 1), the last village built by the Arikara before they joined the Mandan and Hidatsa at Like-a-Fishhook Village. A ring-mound in the west-central part of this

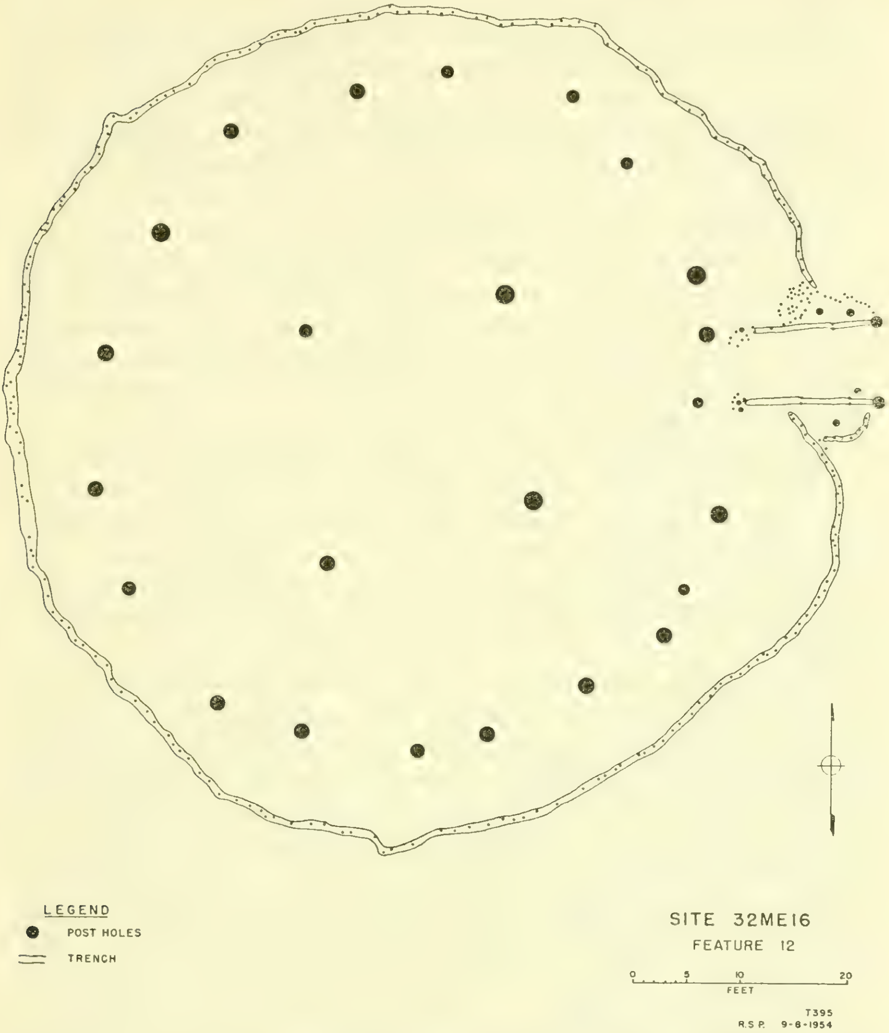


Figure 3.—Floor plan of Arikara ceremonial lodge (Feature 12) at Star Village, 32ME16.

site, much larger than the others, was said to mark the position of the ceremonial lodge or "dance lodge" as it was called locally.

Excavation here revealed the floor of a structure varying from 75 to 77 feet in diameter (fig. 3). No fireplace was present, possibly owing to the short time the structure was in use. Four centerposts, 1.2 to 1.9 feet in diameter and set to a depth of 1.3 to 1.6 feet, formed the central foundation and enclosed an area approximately 20 feet square, with the rear pair of posts some 2 feet farther apart than those in front. Twenty postholes ranging from a foot to 1.7 feet in diameter, and with the same range in depth, formed a rather irregular ring about the central four, at a distance of from 25 to 38 feet from the center of the central area, those in the front of the lodge being the closest. At from 5 to 11 feet beyond these—most commonly at 7.5 feet, and with the distance being the greatest in the front of the lodge—was a shallow, narrow trench which held the butts of many small posts, presumably of leaners which supported the earthen sides of the lodge (pl. 2, *b*).

The entrance was to the east, between 6 and 7 feet in width and approximately 12 feet in length. After excavation it was found to be outlined by two shallow trenches with a post butt remaining at the outer end of each. At each side of the inner end of the entrance, but out of the trench, was a small, shallowly set post butt, each of which was surrounded by a circle of small holes each containing the butt of a willow rod an inch in diameter.

There was no indication of an altar, nor were there any floor or subfloor features other than those already noted. Since this village was occupied only a few months—there is a tradition that some houses were still under construction when the site was abandoned—it is possible that this structure was unfinished at the time the village was abandoned and that eventually it would have contained a fireplace and an altar.

The three structures which have been described are basically similar but vary somewhat in detail. The same basic similarity and variation is found in all, and in the traditional pattern for the building of the ceremonial structure as obtained by Gilmore (1931, pp. 47–70) in 1926. According to his informants the ceremonial lodge stood in the center of the village with an open space before it where the Grandfather Rock and the Sacred Cedar stood. In the center of the lodge, forming the starting point from which all measurements were made, was the fireplace, the diameter of which was the length of a man lying prone—66 to 74 inches. One informant said that in the construction of this feature the earth was removed down to the hard subsoil. Another stated that it was "dug to a depth such that the original level of the ground would be at the waist of a man standing within it, and the earth excavated . . . . was laid in a circular ridge about it until a man standing within could just see over it" (ibid., p. 69).

The four center posts enclosed an area 6 paces square according to one of the informants—between 15 and 18 feet. The second informant stated that the center posts were set at a distance of 2 arm spans of a man from the center of the hearth—between 11 and 12 feet. These four posts were in turn enclosed within a ring of 12 secondary posts which should stand at a distance of 3 paces (7.5 to 8 feet) beyond the posts of the central square, and 4 paces apart. There is the same lack of agreement in the accounts of the distance at which the leaners were placed from the secondary posts, one man stating that the butts were placed at a distance of but 1 pace beyond them, while the other informant places them at twice that distance—at the arm span of a man.

The covered entranceway was oriented to the rising sun, the doorway, fireplace, and altar being in line. The inner end of the entrance was at a distance of 3½ arm spans from the center of the fireplace according to one informant. One gave its width as 1 arm span (68 to 72 inches), while the other made it 3 paces (90 inches); both stated that length and width were equal.

The altar, made of puddled clay mixed with grass, stood at the center of the back wall, opposite the entrance. It was an arm span wide, north-south, and its length was "the space required for a man to sit on his knees and heels and have room in front of him to lay out the Sacred Bundle" (ibid., p. 56). The second informant made it the spread of a man's arms in each direction. Both agreed that the height was the length of a man's hand from the wrist line to the tip of the middle finger. A post 4 to 6 inches in diameter was set at each of the front corners.

No mention was made of an excavation for the floor, but it was said that the women leveled it on their knees and that it was sprinkled with water.

Little or no excavation has been done at the Fort Clark site at which the Arikara lived for over a generation before moving to the Star and Like-a-Fishhook Villages. At the still earlier Leavenworth site a number of houses, among them the ceremonial lodge, were opened by William Duncan Strong for the Bureau of American Ethnology in 1932. A published ground plan of one of the dwelling lodges shows the usual centrally located fireplace, 4 center posts, and a ring of 16 secondary posts. The covered vestibulelike entrance was to the south. The ceremonial lodge is said to have been larger (55 feet in diameter) than the ordinary domiciliary structures, with large posts, a suggestion of an altar against the west wall, and with the entrance to the east (Strong, 1940, p. 367). In all essential details it seems to fall into the same group with those which have already been described.

At the postcontact but undocumented Dodd and Phillips Ranch sites, presumably of Arikara origin, remains of two structures were found which, because of their larger size, central location within the village, and the presence of altars opposite the entrance, are believed to represent ceremonial lodges (Lehmer, 1954, pp. 16–17, 94–95). Like the later lodges, these have a four-post central foundation, but there are some interesting differences, chief of which is an outer row of closely set vertical posts in place of the secondary row and leaners of later times. Other differences seem to be present as well, particularly in entrance details.

Existing but largely unpublished data in the files of the Missouri Basin Project and cooperating agencies suggest that a marked change took place in the structural details of both the ceremonial and dwelling lodge of the Arikara as they moved up the river, although the basic form was retained. After about 1800, Arikara lodges appear to be as closely related to those of the Mandan-Hidatsa type as to the Arikara houses used but a short time before that date.

## HUNTING LODGE

During the 1950 reconnaissance of the Fort Berthold Indian Reservation the two members of the party were several times informed that "tipis" were still standing in the timber along the Little Missouri River. Although rather detailed directions for finding them were given to the party, the site eluded discovery at that time and it was not until 1951 that I finally reached it, in company with G. Hubert Smith and Lee Madison. The site (32DU25) was located in a dense grove of ash trees in a bend on the right (east) side of the Little Missouri River, a mile or two below the mouth of Hans Creek, in the SE¼SW¼ sec. 19, T. 147 N., R. 92 W. (map 1). At this point the stream flows through a deep, sheer-walled, narrow valley in typical badland terrain. The sides of the valley are deeply dissected. Long, narrow, precipitous ridges project from the upland and make the valley not only hard to climb out of, but almost equally hard to descend into. At this point the valley floor is but a few hundred yards wide, and the stream is bordered with groves of cottonwood and ash and dense thickets of rosebushes, bullberries, and wild currants.

When found, the "tipis" proved to be the remains of a single hunting lodge or "woodlodge" of the type formerly built by parties of hunters and eagle trappers. It stood some 25 feet inside the shelter of the timber on the west side of the grove and a matter of 200 yards from the stream. It had partially collapsed, and exact measurements could not be obtained without completely destroying the remains of the structure, which we were unwilling to do.

In building this lodge, four ash posts 6 to 8 inches in diameter and forked at one end had been set at from 4.5 to 5.0 feet apart to form the corners of a square, with the forks about 6 feet above the ground. In the forks two poles were placed running north–south. On top of these poles, and on the outside of the vertical posts, two others were placed running east–west. These four poles were slightly smaller in diameter than the four foundation posts and were between 62 and

72 inches in length. Long ash poles, 3 or 4 inches in diameter and 12 to 15 feet long were then leaned against this foundation, forming a conical structure some 15 feet in extreme diameter at the base. Shorter poles and even rather large, short billets of wood had been placed on these to close gaps and chinks. Many fragments of bark, which in some cases formed large sheets, showed that slabs of this material had been placed, overlapping in shingle-fashion, on top of the poles. No trace of the method used to fasten the bark was noted. A bank of earth about the base of the structure suggested that originally a certain amount of earth had been placed over the bark for some distance up the sides. Considerable bark still remained on the poles at the west side, and there the earth bank at the base attained a height of 18 inches.

No testing was done inside the lodge to determine the presence or absence of a fireplace, or its size and shape if present. One of the central support posts had fallen, allowing the entire structure to fall partially, twisting as it collapsed (pl. 3, *a*), and the floor could have been reached only by completely destroying the remains of the lodge. However, a small fire could safely have been built between the four center posts, the interlaced poles at the peak permitting free escape of the smoke if the bark and earth covering was not carried to the top. The entrance could not be definitely located, but a gap in the partially collapsed circle of poles suggested that the entrance was merely a segment of the circle left open and uncovered in the east side of the structure.

Except in the immediate vicinity of the lodge, the grove in which it stood contained many dead and fallen poles of the size used as leaners, suggesting that dead poles were used in its construction. That this was the case is further indicated by the fact that only the four central posts and stringers, the largest timbers used, showed ax marks.

Bowers has described lodges of this type for the Mandan (Bowers, 1950, pp. 232–233), and I am inclined to suspect that this lodge may be the one occupied by him and his informants while he was studying the eagle-trapping ceremonies. The structure is also very similar to those described for the Hidatsa (Wilson, 1934, pp. 411–414) except for the absence of a brush and grass covering beneath the bark and the absence of outer rails. However, this lodge had been long disused, and any grass or brush covering, if originally present, may have succumbed to the ravages of time and the elements. I am inclined to think, though, that it was never present.

It was probably lodges of this type that Maximilian saw in 1833 somewhere between the present Elbowoods and the Garrison Dam and which he described as ". . . some old Indian hunting lodges, built, in a conical form, of dry timber. They had, doubtless, been left by the Manitaries (Hidatsa), who had come thus far on their hunting excursions. The lower part of the huts, or lodges, was covered with the bark of trees; the entrance was square . . ." (Maximilian, 1906, *in* Thwaites, vol. 23, pp. 216–217).

Washington Matthews (1877, pp. 7–8) quotes a description by Palliser of a "Minnetaree" lodge of this type which the latter had found in the Turtle Mountains (the present Killdeer Mountains) four days from Fort Berthold in the spring of 1858. Matthews then goes on to say: "In the winter of 1871, while hunting with a party of Indians from the Berthold Village, in the badlands of the Little Missouri, I spent three nights in a lodge of exactly the same kind which was quite old, and had often served as the temporary shelter of Hidatsa hunting parties." Matthews later describes a ceremonial structure which was built by the Hidatsa eagle-trappers in their camps, as "built after the manner of their ordinary earth-covered dwelling houses, but is much smaller. The doorway is low and small . . ." (ibid., p. 59). This, in 20 words, describes the ruined structure found on the Little Missouri in 1951 by the survey party.

Variations of this type of lodge are reported for the Hidatsa. One was made by leaning dry poles on each side of a leaning tree. Two forked posts at one end carried a stringer against which poles were placed, giving the shelter a triangular floor plan (Wilson, 1928, pp. 122, 134–135, and fig. 5, *c*). Another variant was formed by digging into a steep slope until a level floor was obtained. Short, forked posts were planted behind the excavation and longer poles were placed in front and inclined to meet them. In a shelter of this type one side was of earth, the other of poles. Apparently no central supports were used (ibid., pp. 142–144, and fig. 7).

Remains of log or pole lodges, possibly of Crow origin, are reported from along the Yellowstone River in Montana. Several types are said to be present, some being conical but without central foundation posts, others made by leaning poles against a cliff. Still others were made of horizontally placed logs (Mulloy, 1952, p. 132, and fig. 57). The Montana remains seem to be more closely related to the Blackfoot war lodge and to the Hidatsa variants described by Wilson than to the structure found on the Little Missouri.

The Blackfoot war lodge, located in heavily wooded areas near streams or on thickly wooded heights, had a foundation of three or four heavy, forked trunks of cottonwood locked together at the top. Lighter poles were leaned against these at the intersections to complete the steep-sided, conical framework, which was then covered with slabs of cottonwood bark. A low, angling passageway made of forked poles leaning together at the top and covered with bark extended outward from the entrance. Logs or rocks were piled against the base on the outside (Ewers, 1944, pp. 183–184). As Ewers points out, the Blackfoot structure is, essentially, a tipi with added elaboration in the form of an angling entrance and encircling breastwork, ". . . it may be considered as a specialized form of tipi among a tipi-using people" (ibid., p. 191).

In the same way the Hidatsa-Mandan hunting lodge with its four-post central foundation and with sides formed of leaning poles may be considered a modification of the earthlodge used in the villages of these tribes, with the winter earthlodge occupying an intermediate position between them.

The use of small lodges of this type may be a widely spread Plains trait with considerable historic depth. In 1941 a Nebraska State Historical Society field party excavated a house floor in south-central Nebraska that yielded only a single rimsherd, which was assignable to the Historic Pawnee Horizon. In the floor a central fireplace was present between five postholes which were arranged in a circle about it, but no outer ring of postholes was present (Field Notes, 1941, 25WT7. Nebraska State Hist. Soc. files). Other floors of the same type but with four posts about the central fireplace and of comparable age and cultural affiliation are known from sites in central Nebraska (Field Notes, 1940, 25N2, 25PK1, 25PK2, 25PK3. Nebraska State Hist. Soc. files). Less closely related, but in the same general pattern, are the structures suggested for the Dismal River Aspect in Nebraska (Hill and Metcalf, 1941, pp. 170–171; Champe, 1949, pp. 286–287). More closely resembling the hunting lodge, except in being semi-subterranean, are the floors occasionally found in Upper Republican sites in Nebraska. A description of only one has, as yet, been published (Wedel, 1934, p. 145), but data are available on a number of others (Field Notes, 1939, 25GY4, 25HW6; 1940, 25N10, 25N8. Nebraska State Hist. Soc. files).

Lodges of this type, assignable to the Upper Republican and Dismal River complexes, seem to have been integral parts of the villages. Later ones, although present in one village, seem generally to have stood alone and may have served to shelter gardeners whose fields were at a considerable distance from the village. The structures recorded in the ethnological literature for the northern Plains were hidden in dense thickets or groves, generally close to streams, in places where their remains may be rarely discovered by the archeologist owing to destruction of the sites by flooding and/or lateral erosion.

It seems certain that the hunting lodge of the Mandan and Hidatsa, with its four-post foundation, is a modification of the larger and more complex earthlodge. Whether or not it is related to similar and earlier structures to the south is a question that may never be satisfactorily answered.

## EAGLE-TRAP SITES

The Arikara, Mandan, and Hidatsa, in common with many other Plains groups, trapped eagles. Stripped of its ceremony and ritual, the procedure consisted of the trapper concealing himself in a pit covered with a light frame over which were strewn brush and grass. A piece of meat or a stuffed rabbit was placed on or beside the screen as a lure. An eagle coming to this bait was seized by the concealed man and drawn into the pit.

Remains of old eagle-trapping pits have been frequently reported from the Upper Missouri River region. Will states that they are widespread along the Missouri River bluffs, in the badlands, and on the scattered hills and buttes, in North Dakota and in northern South Dakota (Will, 1924, p. 298).

Another student who is familiar with the area says that "in the rough country, west of the Missouri River there are thousands of depressions marking the sites of former pits. These pits vary from sharply rectangular forms with rotted sections of the cover still protruding to gently rounded depressions now nearly filled by erosional activity" (Bowers, 1950, pp. 207-208). Bowers has also published a map showing the location of 31 Mandan and Hidatsa eagle-trapping camps (ibid., fig. 28).

Wilson was told by an old Hidatsa that pits were always dug on the west side of the promontories, since the eagle always migrated on a west wind (Wilson, 1928, p. 213). "We never placed a pit on the top of a hill; but we did locate them on the top of a flat bluff," Wolf Chief stated (ibid., p. 118). The same informant, in describing an eagle-trapping expedition, stated that he dug his pit at the foot of a westwardly sloping bluff (ibid., p. 117).

Densmore, while recording Mandan and Hidatsa music on the Fort Berthold Reservation, was shown an old pit on the westward slope of a butte (Densmore, 1923, p. 62).

Bowers says that eagle trapping was confined to the rough land adjacent to wooded streams and that the pits were dug on the top, or near the top, of hills or on benchlands adjacent to the streams (Bowers, 1950, pp. 206–207). In another place he says that "most trappers had their pits on the tops of hills near the northwest edge, but it was believed that the best pits were those on the northwest slope about three rods from the top of the hill" (ibid., p. 239).

Among the Yanktonai the pits are said to have usually been on bluffs overlooking the Missouri, although some were not near any watercourse (Howard, 1954, p. 71). Blackfoot trapping pits are described as being on the top of a butte, at the east end of a butte top, and on the top of a long, narrow ridge (Schultz, 1922, pp. 58, 204, 220).

Published accounts regarding the size of the pits are even less uniform than those regarding their location. Wilson (1928, p. 212) was shown an old pit which was about 5 feet square and 3½ or 4 feet deep, but one of his informants, describing the digging of a pit, stated that a rectangular area was measured off, equal in length to the trapper's height so that he could lie down without touching his head and feet to the walls. This informant described his pit as being about 30 inches wide and apparently oriented north–south. It was deep enough to allow the occupant to sit upright without touching the cover with his head (ibid., p. 114).

The Mandan are said by one student to have made the pit deep enough to allow the trapper to sit upright but too short for him to lie in, stretched out at full length (Bowers, 1950, p. 239). On the other hand Maximilian (1906, *in* Thwaites, vol. 23, p. 348) recorded for the same group, in 1833, that the trapper "lies down at full length in a narrow pit made on purpose, and exactly large enough to hold him." The old pit visited by Miss Densmore was less than 3 feet deep and less than 4 feet in width (Densmore, 1923, p. 62). A Blackfoot informant describing his method of taking eagles did not give the dimensions of his pit but said that he dug a deep hole, so deep that he could stand erect beneath the cover. In this hole he stood all day (McClintock, 1910, p. 428). This seems to imply a small but deep pit. For the same tribe Schultz (1922, pp. 59, 205) decribes a pit as being the length of a man, narrow, and shoulder deep. One of the Yanktonai interviewed by Howard thought that the pits were about 5 feet long, 3 feet in width, and 3 feet deep, but another described pits 5 feet in depth (Howard, 1954, p. 71).

It seems probable that pits varied greatly in size according to the whim of the individual using them. Occasionally, too, they were cleaned out and used a second season. If the walls had slumped they were rebuilt with stones and small logs (Wilson, 1928, p. 212) but the slumping must have resulted in some enlarging and change of the original shape. It seems probable that tribal differences may have been reflected more strongly in the accompanying ritual than in the size and location of the pits. McClintock (1910, p. 62) and Schultz (1922, p. 58) mention the Blackfoot trapper as occasionally taking a human skull into the pit with him, a practice nowhere noted for the other groups. Howard's informants stated that the bodies of the eagles trapped by the Yanktonai were buried in the pit, which after being filled was marked by encircling it with a row of stones (Howard, 1954, p. 73). No trace of this custom was found during the Garrison Reservoir survey, but stone circles about eagle-trapping pits are reported from Montana (Hoffman, 1953).

Eagle trapping has not been generally practiced in the Fort Berthold area for 50 years according to Bowers (1950, p. 233). In that time the walls of the old pits have slumped and erosion has reduced them to shallow, rounded depressions. The primary purpose of the 1950–51 surveys was to locate occupation areas which would be covered or otherwise destroyed by the waters of the reservoir. Since these pits were commonly placed in spots which will not be affected by the eventual flooding of the valley, the main efforts of the survey were away from the spots where they would be most commonly located. A few were found, however, and we were told of others. None was found below the edge of the bluffs, and it seems probable, in view of the amount of filling shown by those on the upland, that evidence of their former presence on slopes or at the foot of bluffs has been largely erased. All the pit locations listed below are safe from flooding, although some will undoubtedly be destroyed by slumping when the pool fills. It is unlikely that any more data could be obtained from their excavation than are present in the literature. With the exception of pits at site 32DU2, none of the pits listed below were tested.

*32ME50* (*map 1*).—The first pit site recorded was located in the SW¼NE¼ sec. 12, T. 146 N., R. 89 W., on a northward running arm of the upland, west of Beaver Creek and south of an eastwardly running tributary of that stream. At the time of our visit the site of the pit was marked by a depression 18 inches deep at the center, about 5 feet long north–south, and 3 feet in width. The depression, filled with grass grown taller and greener than that about it, was on the west side of the promontory and not far from the north end. It overlooked the broken area to the north, west, and southwest. The landowner, who guided us to the spot, told us that as a boy he had heard old people say that the pit was used by eagle trappers from "Old Village"—a term in common use today in referring to Like-a-Fishhook Village.

*32DU2* (*map 1*).—On the right side of the Missouri River, a short distance above the site of the Elbowoods bridge, in the SE¼SW¼ sec. 1, T. 147 N., R. 91 W., is a spectacular, sheer-walled butte. The top of this, a thousand feet in length, varies in width but nowhere exceeds 225 feet. The butte top shows an occupation level, and at the southeast end several depressions 12 to 18 inches deep and 20 to 25 feet in diameter are present. Tests showed limited amounts of charcoal in one, while another showed a heavy layer of charcoal resting on yellow clay and overlain by 6 inches of sterile soil. The others were completely sterile. Local tradition says that these latter, sterile depressions were pits constructed for the storage of water by people encamped on the butte and fearful of being besieged there.

At the northwest end of the butte-top were found a number of small rounded depressions 3 to 4 feet in diameter and about 6 inches in depth. It was suspected that these were the sunken tops of caches, and a test was made in one. Only decayed pieces of small wooden rods were found in the fill, and it is now believed that these shallow basins probably represent former eagle-trapping pits, the wooden fragments being the remains of the covers.

*32ML42* (*map 1*).—East, across the river from Independence settlement, in the SW¼NW¼ sec. 30, T. 150 N., R. 90 W., is a landmark known as "The Slides." At this point the Missouri River coming from the west strikes the foot of the bluff which forms the west side of the upland and makes a sharp turn to the south. The west face of the bluff has slumped, and the whitish underlying formation thus exposed is visible for miles from the west and southwest. A westwardly running coulee, down the bottom of which trickles a small stream, cuts a gash in the uplands just to the north of The Slides and an upland promontory has been partly detached, forming a flat-topped butte (pl. 3, *b*). From the top of this a splendid view is obtained up and down the valley of the Missouri and for miles over the hills and rolling country beyond Independence.

At the extreme edge of the bluff in the northwest part of the level butte-top, and in line with the north (left) bank of the stream, is a circular depression. This is between 6 and 7 feet in diameter, 2 feet in depth, and probably represents a former eagle-trapping pit. The sides of the basin-shaped depression are smoothly sloping, and the bottom of the feature supports a more luxuriant growth of vegetation than the immediately contiguous area (pl. 4, *a*). The entire butte-top was carefully examined, but no artifacts and no other definite depressions were found. In several places along the west edge the grass was somewhat taller, and at each such place there was a faint, rather indefinite suggestion of a depression. These may represent the sites of still older pits.

The site is of interest because the Black and Brown Bears, who gave the eagle-trapping rites to the Mandan and Hidatsa, had an eagle-trapping camp, Buckbrush Camp, some 2 or 3 miles to the west and are said to have had trapping pits in the hills at "The Slides" (Bower, 1950, p. 223; Wilson, 1928, p. 189).

*32ML9* (*map 1*).—This site is just east of the reservation boundary on the left side of the Missouri River, on top of a high hill locally known as Battle Butte, in the NW¼NW¼ sec. 19, T. 147 N., R. 86 W. The Missouri River washes the foot of the butte at the south side, while the broken ravine-cut area on the other three sides is typical of the small, rugged badland areas scattered along this section of the river in North Dakota.

The level top of this butte is roughly oval in outline and measures about 100 yards east–west by 75 yards north–south. A number of shallow depressions in the sod suggests the former presence of small earthlodges and exterior caches. These depressions range in diameter from 4 to 20 feet, and small tests revealed burned earth, charcoal, animal bones, and flint flakes in the larger ones to a depth of 12 inches. A few small cord-impressed sherds that were picked up about the edge of the butte top appear to belong to some phase of the widely spread Woodland pattern and closely resemble a number of aberrant sherds recovered by Hartle in excavations at Nightwalkers Butte in the Bull Pasture, a butte-top village site (32ML39) a few miles up the valley.

Near the south edge, at the east end of the flat butte-top, was a different type of depression. This measured nearly 8 feet in length by 4 feet in width, with the long axis east–west. It appears to be of fairly recent origin, since the walls have not entirely collapsed, and measured 3 feet in depth. No traces of a cover were found, nor was there any trace of a dirt pile resulting from the excavation of the pit. Earth removed in digging an eagle-trapping pit is said to have been carried away and scattered at a distance. This pit is believed to represent a rather recent eagle trap.

*32ML48* (*map 1*).—In the same quarter section and a short distance west of the butte on which 32ML9 is located is a somewhat larger topographical feature of the same type. On top and near the rim at the northwest end is a well-sodded depression 6 feet in diameter and 12 to 15 inches in depth. From its location and appearance I believe it to be all that remains to mark the former presence of an eagle-trapping pit.

These last two sites, 32ML9 and 32ML48, are both in the first hilly, badland area east of the site of Like-a-Fishhook Village. In the legend of the origin of the Eagle Trapping Rites, as obtained by Bowers (1950, p. 223), it is stated that the Bears had a trapping place below that village, on the high banks. This was known as High Butte Trapping Camp and must have been in the area where 32ML9 and 32ML48 are located, since there are no other buttes or high banks below the village on that side of the stream until Riverdale is reached, over 20 miles below. It may be significant in this connection that three buttes are present here in a row and that the narrator of the legend said, regarding the location of High Butte Trapping Camp, "We do not know if it was Sandy Lodge, Thunder Butte or One Cottonwood that he had his camp close to."

It is probable that these two sites, 32ML9 and 32ML48, will be destroyed when the reservoir fills. Both are on relatively small buttes that will become islands. Wave action alone would destroy them in a few years, but a greater threat to their permanence is the character of the formation of which they are composed: a hard clay which is markedly unstable when water soaked. After the base has become saturated during a full-pool period, a rapid draw-down of the pool level, such as will occur during the dry season, will inevitably result in the destruction of the buttes through slumping. It seems certain that these buttes will become mud bars in the course of a few years. This is particularly unfortunate in the case of 32ML9, where an apparently fairly rich occupation level is present in addition to the remains of an eagle trap or traps.

## ROCK CAIRNS

Rock cairns were occasionally noted during the course of both the 1947 and the 1950 surveys. Apart from those which appear to be associated with tipi rings, they appear to be most common in the rugged country above the mouth of the Little Missouri. In general they were near the edge of bluffs overlooking tributary streams but are seldom so close that they will be endangered by wave action or slumping, and all those seen were well above the full-pool level. Since the 1950 reconnaissance party had a large area to examine, one which contained a great deal of exceedingly broken badland terrain in which roads, when present, were poor, and since the time at our disposal was limited, few records were made of these features. Characteristically they were simply small piles of the glacial boulders—"niggerheads"—which are so plentifully distributed over the area. In size they varied from a pile of a dozen small boulders to one or two which were possibly 10 feet in diameter and 3 feet in height. The 1947 notes indicate that in the upper reaches of the reservoir area a change occurs in the character of these features, many of them having the interstices between the stones filled with earth. It was not determined whether this results from the deposition of wind-carried dust or whether the cairns in this area should be considered small boulder-and-earth mounds.

A local collector, James Vaagen, of Werner, N. Dak., reported that the smaller cairns were not uncommon along the edge of the upland overlooking the valley of the Little Missouri River, west of Hans Creek. Vaagen also told us that he had hauled the stones from some of the cairns to his ranch, where they were used for building purposes, and that he had found broken and poorly preserved human skeletal material beneath some of the boulder piles. As a boy he had been told by old Hidatsa and Mandan individuals that when a death occurred in a hunting party far from the village, the body was placed beneath a pile of stones. Bowers (1950, p. 100) was told that when a Mandan died while away from the village, the body was wrapped in robes and placed either in a tree, in a crevice among the rocks, or in a shallow grave covered with stones.

We were told by local people that similar cairns occur along the edge of the valley, overlooking the Missouri River in Montana. In 1833 Maximilian describing the country about Fort Union, says: "We observed on the highest points, and at certain intervals of this mountain chain, singular stone signals, set up by the Assiniboins, of blocks of granite, or other large stones, on the top of which is placed a buffalo skull, which, we were told, the Indians place there to attract the herds of buffalo, and thereby to insure a successful hunt." (Maximilian, 1906, *in* Thwaites, vol. 23, p. 383.)

In 1941 N. C. Nelson tested a cairn in the Pryor Valley, on the Crow Reservation in southeastern Montana, for the American Museum of Natural History. This feature measured 12 meters in diameter and 150.0 centimeters in height. Like those in the upper part of the Garrison Reservoir area, it was composed of earth and boulders. The upper half proved to contain a fair number of stone artifacts, glass beads, bone and shell ornaments, and some 200 potsherds. Nelson (1943, p. 166) believes these may represent offerings.

Cairns which have been attributed to the Dakota are reported as frequently occurring on the tops of the highest hills and buttes in the area west of the Missouri River (Will, 1924, p. 295). Others are said to have been built near the sites of old Mandan and Hidatsa villages by visiting tribesmen ". . . . in memory of their ancestors who formerly lived there" (ibid.).

The Blackfeet are said to have erected cairns within the last 75 years to mark the sites of memorable events (Kehoe, 1954, p. 134), while Ewers states (1955, p. 230) that the same tribe sometimes marked the finish line of a horse race with "two piles of rocks, each about 3 feet high, erected some 60 feet apart."

During the summer of 1951 members of the survey party were shown two unusual cairns by a local resident of mixed Mandan-Hidatsa ancestry. These received site numbers and are described below.

*32ME62* (*map 1*).—This site is on a low knoll at the end of an upland spur, and from it one can see far up and down the valley of a small unnamed arm of Beaver Creek which flows from west to east about a mile south of the site. It may be further located as in the SE¼SE¼ sec. 6, T. 146 N., R. 89 W. and is about 3.5 miles south of a local landmark known as Red Butte.

The cairn is a conical pile of large, rough boulders and measured 8 feet in diameter by 3 feet in height. Immediately north of this is an east-west row of smaller boulders 5 feet in length. From the center of this row another alinement of small boulders runs north for a distance of 30 feet to the center of a second 5-foot row running east-west. Our guide referred to the complex as ". . . a rockpile with an arrow pointing at it." Immediately northeast of the cairn, marked out with cobbles, is the figure "XV," which we were told was the brand of a ranchman who ran cattle in the vicinity and which was made by two boys who were herding cattle there a few years ago. The tall grass which covered the site at the time of our visit not only effectually concealed most of the details of the alinement to the north of the cairn in the photographs which were taken (pl. 4, *b*), but also prevented our finding any surface material which may have been present.

Our guide informed us that another cairn with an associated line of small boulders was located between the Missouri and Little Missouri Rivers, in the neighborhood of Saddle Butte. The line of boulders at that site is apparently curvilinear, since it was described as representing "a snake crawling up to the rock pile."

*32ME63* (*map 1*).—This site is 1.5 miles northwest of 32ME62 and is located on the crest of a mound approximately 60 feet in diameter and 6 feet high. This cairn, like the first, is composed of boulders as large as a man could lift and measures 6 feet in diameter and 2 feet in height. Four alinements of smaller boulders, 25 feet in length, radiate from the cairn to the four cardinal points of the compass. On the slopes of the mound were found a few flint chips, a few retouched flakes, an end-scraper or two, and two very tiny nondescript sherds.

Another cairn, smaller and consisting of but a dozen boulders, now somewhat scattered and deeply imbedded, is present on the apex of a smaller mound 150 feet east of the first. No alinement is associated with this cairn.

Montgomery, discussing mounds north of here in Manitoba and Saskatchewan, describes a feature similar to the cairn and mound present at this site. The mound he describes is smaller, about 20 feet in diameter and 5 feet high, and constructed of earth and boulders. From the cairn three well-defined rows of small boulders extended in straight lines for a distance of 220 feet. These rows were at right angles to each other, running to the north, west, and east, with each row terminating in another cairn (Montgomery, 1908).

Other cairns which were recorded in the Garrison Reservoir area were associated with tipi rings and will be mentioned in the descriptions of those sites.

The problem presented by the rock cairns of the northern Plains is one which deserves a great deal more study. Such of these features as were seen during the course of the survey, coupled with the data contained in the few references quoted in this section, leads one to suspect that in western North Dakota they represent more than one cultural group and vary greatly in age. It seems certain that they have been erected for varying reasons; some were built to cover burials, while others may have served as shrines or may in some cases mark the sites of occurrences which were considered noteworthy.

## TIPI RINGS

Sites showing one or more circles of small boulders or, in some localities, of stone slabs, are common in the Northern Plains and were frequently found on the Fort Berthold Indian Reservation and in the reservoir area generally. Both Indian and White residents refer to these outlines as tipi rings, and a number of Indians volunteered the statement that their fathers and grandfathers had told them that the rings marked the sites of former camps. These were said to have been summer camps, hunting parties often encamping on the high places, where the rings are most commonly found, to escape the mosquitoes present nearer the streams; or, arriving at the valley rim at a late hour, they often encamped on the upland in preference to attempting the descent of the rugged valley sides in the failing light.

The stones are commonly said to have been used to anchor the tipi cover, but occasionally the statement was made that they were placed against the butts of the poles to brace and steady them. No person questioned had ever seen stones used for their purpose, although some of them had seen tipis in use. In 1949 and 1950 I questioned three aged Dakotas regarding the rings in sites of this type which are also present in southwestern South Dakota. All three spoke of the stone circles as tipi rings and ascribed them to the Kiowa. All three had owned tipis, but all denied the use of stones by the western Dakota to brace the poles or hold down the cover of the lodge. Maximilian says, however, that both the Teton Dakota and Assiniboine dug up sods which were piled on the lower edge of the tipi and mentions the resulting rings of sods which remained after the tipis were moved (Maximilian, 1906, *in* Thwaites, vol. 22, p. 318; vol. 23, pp. 19, 199).

The Crow are said to believe that rocks were once used to weight down the bottoms of tipi covers, although one informant restricted the practice to the winter season (Lowie, 1922, p. 224). Information obtained by Kehoe from a number of elderly Piegans during the summer of 1953 indicates a belief among the members of that tribe that the rings of stones were made by their ancestors, who anchored the bottoms of their tipis in this fashion. Several of the informants believed that stones were used for this purpose when the dog was their only means of transport, while others stated that the practice continued after the acquisition of the horse. Kehoe's interpreter showed him tipi rings the construction of which he had witnessed, and a ring which marked the site of a tipi of the informant's grandfather (Kehoe, 1960). Over 40 years earlier McClintock gathered substantially the same information; an informant, relating the tale of a legendary event, stated that it happened before the days of the horse, "when they used stones instead of wooden pegs to hold down their lodges" (McClintock, 1910, p. 492). McClintock describes seeing a tipi prepared against an approaching storm by "laying stones and logs around the bottom of the canvas, so that the pegs could not be loosened by the wind-strain (ibid., p. 59).

While it seems probable that many tribal groups of the Northern Plains fastened down their tipis with a ring of stones, there is evidence to indicate that such a practice may well not be the explanation for all such features in the area. Kehoe, although apparently committed to the hypothesis of their use in anchoring the tipi, describes another feature, the Medicine Wheel, which, in its simplest form, it would be hard to avoid placing in the tipi ring category (Kehoe, 1954). As has been noted earlier in the discussion of eagle traps, Hoffman reports those features from Montana where they are sometimes surrounded by a ring of stones (Hoffman, 1953), and Howard presents evidence that some groups of the Dakota surrounded the sites of trapping pits in which the remains of eagles were buried with similar boulder outlines (Howard, 1954, p. 73).

In the Garrison Reservoir area tipi ring sites were most commonly found on the uplands and often far from streams. Occasionally they were present on what appeared to be the remnant of a very high terrace between the upland and Terrace 1, which overlooks the flood plain, while a few were on slopes and hillsides. None was noted on Terrace 1, although I have seen them on that terrace along the Cheyenne River in southwestern South Dakota. The diameter of the circles varies greatly but commonly falls between 15 and 25 feet. Tests by the survey parties disclosed evidence of fireplaces in the center of some rings, but in others no trace of such a feature was present. In a few instances the stones forming the rings were deeply sunken in the sod, suggesting a moderate age. Most sites are well above and away from the full-pool level, although a few, such as 32 DU8, may be affected by slumping of the valley walls.

*32DU8* (*map 1*).—This site consists of eight stone circles (pl. 5, *a*) strung out for 500 yards along the east spur of the upland. The site is on the right side of the Missouri River in SE¼NW¼ sec. 20, T. 150 N., R. 93 W. The spur on which the rings occur forms the divide between the valleys of Bear Den Creek to the west and Boggy Creek to the east.

All the rings appear to be of about the same size, and two measured respectively 17 and 18 feet in diameter. Tests were made in the center of these two circles, with negative results, but a few flint chips were found on the surface near them.

*32DU10* (*map 1*).—This site, like the first, is on a long spur of the upland formed by two deep and narrow coulees which run back from the river for miles. The site is some 2 miles from the Missouri River on its right (south) side in the SE¼ sec. 4, T. 149 N., R. 93 W. Brush-choked ravine heads bound the site on the east and west. The three circles of small boulders present measure 15 to 18 feet in diameter. A test in the center of one uncovered a red-burned area 2 feet in diameter at 6 inches below the surface. There was no evidence of a prepared pit; on the contrary, the fire appeared to have been kindled on the surface. The earth beneath it was reddened by heat to a depth of slightly over an inch. A chalcedony flake and a small piece of burned granite were the only associations.

*32ME50* (*map 1*).—About a hundred yards east of an eagle trap listed under this number there was found a stone circle or tipi ring 18 feet in diameter. No cultural debris was present on the surface, and the ring was not tested.

*32ME61* (*map 1*).—This site is in a wide coulee head, the sides of which are gently sloping. It is on the right side of the Missouri River, southeast of Red Butte, in the SW¼NW¼ sec. 32, T. 147 N., R. 89 W. A large westward-running coulee splits into three arms near the head, and in the upper end of the northernmost of these the site is located. The 20 circles present measure very uniformly 18 to 20 feet in diameter. The arrangement of other stones suggests that more rings were once present but have been disarranged by haymaking activities. The stones which formed many other circles are reported to have been removed some years ago and used in the construction of a small dam which is present in the main coulee.

Extending in a row along the crest of a low but steep-sided ridge to the south of the stone circles are a dozen small piles of boulders, three to six stones in a pile and with the piles 40 to 50 feet apart. We were told that these were part of a former bison trap. It was said that only one wing was needed, since the herds, which were driven in from the upland to the southwest, would be turned down the coulee by people stationed at this simple barricade on the ridge. That this was actually the purpose of the small stone piles seems doubtful, for while the coulee becomes narrower below this point, there is no cut-bank or cliff over which the driven animals would fall. A ledge of rock crosses the coulee bottom some distance below this location, forming a drop of not over 4 feet. It is perhaps possible that if a herd stampeded down the narrow coulee and over this low drop, many young or weak animals would have been so injured in the press at this bottleneck and low fall as to render them easily killed by unmounted hunters.

*32ME65, North Renner site* (*map 1*).—This site, which is just east of the reservation boundary, is well back from the Missouri River, on the left side of a gently sloping coulee that carries a small intermittent stream. The site is immediately below the edge of the upland, in the NW¼NE¼ sec. 14, T. 146 N., R. 88 W. The side of the coulee slopes gently to the east but at one place is crossed by a very low but long and narrow ridge, which extends east–west down the slope. Scattered along this slight rise are several boulder rings ranging from 17 to 22 feet in diameter. The area where they occur is used for grazing and has never been plowed, but the outlines of the rings are somewhat irregular, the stones of which they are formed having been disarranged to some extent, perhaps by grazing animals. Most of the stones, however, are deeply sunken in the sod.

Among the rings, on the very crest of the ridge, is a feature which, for lack of a better term, we are calling a cairn. This is a concentration of heavy boulders, closely placed and deeply sunken. It measures 6 feet in length and 4 in width, with the long axis east–west. None of the stones, some of which are 18 inches in diameter, extends more than 8 inches above the surface.

No testing was done at this site and no artifacts were found on the surface, but the landowner reported that he had found stone projectile points there in the past.

*32ME66, South Renner site* (*map 1*).—Half a mile south of 32ME65, in the SW¼NE¼ of the same section, another low ridge that runs down the eastward slope of the coulee side also carries a number of rings. The upland immediately to the west is under cultivation and the landowner stated that many more rings were present there before farming operations destroyed them. Only a few flint chips were present on the surface of the site, but arrowpoints are reported to have been found there in the past.

*32ML8* (*map 1*).—This site is located on a high bluff, perhaps a remnant of Terrace 2, on the left side of the Missouri River, south of Douglas Creek, in the SE¼ sec. 9, T. 148 N., R. 85 W. Between 20 and 30 widely scattered rings of glacial boulders make up the site, the rings varying from 10 to 24 feet in diameter. Tests failed to reveal either fireplaces or cultural material below the surface, but local people reported having found grooved mauls and corner-notched projectile points there.

*32ML10* (*map 1*).—This site, like that above, is on a high bluff on the left side of the Missouri valley and on the right side of Douglas Creek at the point where that tributary debouches into the valley of the larger stream. It may be further located as in the SE¼ sec. 31, T. 148 N., R. 85 W.

About 25 circles of small boulders and several stone piles or cairns are strung out for a half mile to form the site. Small test excavations revealed no artifactual material, but a grooved maul, three or four end scrapers, and a number of modified flakes were picked up from the surface. Grooved mauls and projectile points of unspecified types are reported to have been found there in the past.

*32ML34, Bad Brave site* (*map 1*).—This site is on the left side of the Missouri River, west of and overlooking a small tributary known as Shell Creek. It is on a small, level area, well below the upland and is believed to be a remnant of Terrace 2. More exactly it is in the NW¼NE¼ sec. 18, T. 150 N., R. 91 W.

Seven widely scattered rings or parts of rings are present, the best preserved of which measured 17 feet in diameter (pl. 5, *b*). A test in the center showed a small burned area resting directly upon light-colored clay and gravel at a depth of 6 inches. It did not suggest a basin-shaped hearth but rather a place where a fire had been kindled directly upon the surface. No cultural material was associated with the hearth, and only a few flint chips were found on the site.

*32MN14.*—This site is on the left side of the Missouri River, half a mile east of White Earth Creek, in the SW¼NE¼ sec. 36, T. 154 N., R. 94 W. It lies on a small bench in the forks of an intermittent stream and is not over 75 yards in length by approximately 50 yards in width. Although only some 10 feet above the stream bed, it is well above danger from flooding. Three well-preserved rings are present, and others may have been destroyed by lateral erosion. Tests uncovered fire-cracked rocks in the center of one circle, and two stone blades and an end scraper came from the surface.

*32MN20* (*map 1*).—This site, known locally as "Verendrye Village," is widely scattered over high points and uplands in sec. 25 and 37, R. 93 W., and sec. 30 and 31, R. 92 W., all in T. 154 N. Large springs are present in sec. 30. More than 100 of these circles of small boulders are scattered over an area of 4 square miles, and since only a part of this area still remains in native sod, cultivation has undoubtedly destroyed many more rings than are now present. Tests made in the circles revealed no recognizable occupation level and yielded no cultural debris, nor were any artifacts picked up from the surface of the site. Projectile points are said to have been found there in the past, but none was seen and no information regarding point types could be obtained.

*32MZ3* (*map 1*).—This site lies in sec. 15, T. 152 N., R. 100 W. The numerous outlines, which are scattered for half a mile on both sides of Tipi Coulee, are ill-defined and roughly circular to rectangular in shape. Two of them definitely have straight, parallel sides. Tests showed a few flint chips at the grass roots, but no charcoal or ash admixture and no artifacts. Two broken projectile points came from the surface, and the tenant reported having found grooved mauls there.

*32MZ5* (*map 1*).—A tipi ring site, which was not visited, was reported to the survey party to be present on a high ridge overlooking a tributary of Tobacco Garden Creek, in the S½ sec. 6 T. 151 N., R. 98 W.

*32MZ8* (*map 1*).—This site, which lies above the area to be flooded, was visited briefly in 1947. It lies on the second terrace, on the left side of Tobacco Garden Creek, in the SE¼ sec. 10, T. 153 N., R. 97 W. The landowner reported that boulder outlines extended for more than 2 miles and that some were rectangular. He had found projectile points and grooved mauls on the site and reported that one "stone mound," which he had dug into, had yielded scraps of bone.

*32WI2* (*map 1*).—This site, which is located on an upland bluff on the left side of Crazymans Coulee in the S½ sec. 33, T. 154 N., R. 100 W., consists of a dozen circular arrangements of small boulders strung out along the bluff edge for a distance of one-quarter mile. Some are single rings of large stones, others are made up of several rows of small stones. Many of them are in an excellent state of preservation. Tests were uniformly negative, and only a few flint chips were found on the surface by the survey party.

*32WI4* (*map 1*).—A site consisting of six circles of small boulders and two small cairns is present in the N½ sec. 6, T. 153 N., R. 99 W., on top of Medicine Lodge Hill, the highest hill in the vicinity. Scattered about this rather compact site were many flint chips as well as an end scraper, a sherd, modified flakes, and a glass bead. All tests, however, were negative. A local collector in Williston, N. Dak., has found projectile points at this site and reports having excavated a burial, but no data are available on either the burial or the point types.

*32WI5* (*map 1*).—Five well-defined circles of small boulders and limestone slabs, located in an area measuring 200 by 60 feet, constitute this site. The circles, which vary from 12 to 60 feet in diameter, are found on the second terrace on the left bank of a small tributary of the Missouri River. The site is 18 miles southeast of Williston, N. Dak., in the NE¼ sec. 3, T. 153 N., R. 98 W. All tests were negative, and no material was found on the surface. The variation in the size of the circles at this site seems particularly noteworthy.

*32WI9* (*map 1*).—Scattered for a quarter of a mile along a high ridge which thrusts out into the valley of the Missouri west of Baldwin Creek, in the W½ sec. 11, T. 154 N., R. 97 W., are 10 stone circles. They vary in diameter from 10 to 30 feet, and openings are present in the southwest part of the rings. Small rock mounds occur on the left side of four circles. The rings are in native sod, and more may have been present in the cultivated field adjacent to the north. No material was found on the surface, and tests in and about the rings were, as is generally the case in this area, uniformly negative.

*32WI10* (*map 1*).—In the NE¼ sec. 3, T. 153 N., R. 98 W., about a mile north of the Missouri River, on the west side of Long Creek, are two small knolls. Six boulder circles are present on one of them, while two are on the other. At least two of the eight rings show gaps suggesting entrances on their north sides. Several small rock cairns occur among the circles, and one of them was tested by the survey party. The landowner is also reported to have tested one of the mounds. Nothing was found in either test. Grooved mauls have come from the site as surface finds.

*32WI12* (*map 1*).—Hundreds of tipi rings and many stone mounds are present on the high ridges overlooking Muddy Creek, north of Williston, N. Dak., in sec. 22, 23, 15, 16, 17, T. 153 N., R. 101 W. A coulee which is present in this area has the bottom cut by a rather deep ravine. The sides of the coulee are steep and break sharply just above the bottom, the sides of the break being covered with dense thickets. Surprisingly enough, since the stone rings are the only signs of habitations, this tree- and brush-grown slope shows many midden deposits ranging from 6 to 36 inches in thickness. In 1947 one of these midden areas in the south half of sec. 16 was tested (pl. 6), and the small excavation yielded 23 rim sherds and 100 body sherds as well as other artifacts.

Although there are occasional variations, the sherds are sufficiently homogenous in details of tempering, texture, color, surface treatment, and decoration to be classified as a single ware. In color it is generally dark on both exterior and interior surfaces, the cores always so. Occasional sherds are gray, this shade being more common on exterior than on interior surfaces. The mottling of some sherds suggests that in some instances complete vessels would show firing clouds. An occasional sherd has a hard, black encrustation of soot on the exterior surface.

The ware is sparsely tempered with fine, angular particles of pounded stone, apparently granite, evenly distributed throughout the paste. The paste is moderately compact and well worked, and fresh breaks have an appearance ranging from slightly granular to moderately laminated, the latter condition being most common. Breaks are sharp and clean. No tendency to crumble and no splitting of sherds was noted.

No trace of coiling could be found, and vessels were presumably shaped by the paddle and anvil method. Of the 100 body sherds, 71 have simple-stamped exterior surfaces, with ridges and grooves produced by the use of a grooved or throng-wrapped paddle (pl. 7, *j*, *k*, *l*, *m*). Nine sherds show impressions very much resembling check-stamping, but they may indicate a second blow with a paddle held at a right-angle to the first (pl. 7, *g*, *h*, *i*). After the paddling process, a certain amount of burnishing took place, which in a few cases has produced a rather high gloss. Twenty sherds have a smooth exterior surface, but since the burnishing action which followed the shaping process has almost completely erased the stamp imprint on many of the 71 sherds in the first group, it seems probable that all were originally stamped. Most sherds show a pseudoslip caused by the floating of the finer clay particles to the surface during the stamping or polishing treatment.

There is considerable variation in the thickness of individual sherds and often of the same sherd, a single large example showing a variation of 5.5 mm. between the opposite margins. The 71 simple-stamped sherds show a thickness range of from 3 to 10 mm., with 47 percent measuring 5 to 6 mm. in thickness and 69 percent measuring 5 to 7 mm. This group has an average thickness of 5.54 mm. The nine check-stamped sherds have a thickness range of 3 to 6.5 mm. with a mean of 4.44 mm. Seven of the nine measure 4 to 5.5 mm. in thickness. The 20 smooth sherds have a thickness range of 3 to 9 mm., with a mean of 5.45 and with 55 percent measuring 5 to 6 mm. As a group, without reference to surface treatment, the body sherds average 5.48 mm. in thickness, with extremes of 3 to 10 mm., 48 percent measure 5 to 6 mm., and 67 percent measure 5 to 7 mm. The thickest of the body sherds appear to be from the basal portion of vessels, and a few sherds suggest that in some cases the shoulder area comes next in thickness.

Rims average thicker than body sherds. The 23 rim sherds were measured below the thickened lips and showed a range of from 4 to 9 mm., with an average thickness of 6.86 mm. Ten sherds formed a group measuring 6 to 7 mm., and four had a thickness of 9 mm.

Little regarding the shape of vessels can be deduced from the handful of sherds recovered at this site. Two body sherds suggest pots with sharp, angular shoulders, rounding bases, and very sloping upper bodies. A few sherds from Rock Village (32ME15) suggest a vessel of this shape, and a restored vessel of similar form came from the Nightwalkers Butte in the Bull Pasture site (32ML39), while a third has been reported from the Hagen site in Montana (Mulloy, 1942, p. 17, fig. 8).

The rims rise from a constricted neck which is a simple line of juncture between rim and body. Since many of the rims are broken at or just above the neck, it is not possible to determine whether they most commonly rose straight or whether they flared outward to some extent. There is no general tendency toward curvature of the rims in the sample recovered, although two rims suggest the S-shaped form found at the Double Ditch Mandan site (Will and Spinden, 1906, p. 175; pl. 39, *b-e*) and Hidatsa sites (Strong, 1940, p. 365), and which were also present at the Hagen site (Mulloy, 1942, p. 18). Commonly the rims were thickest at the lip with a wedge-shaped profile due to the pressure used in flattening that feature. In a few cases the rim has been folded back on itself and welded, producing a rounded collar on the rim immediately below the lip, a trait found commonly at Rock Village and at 32ML39, and which seems to be a common form from the late Hidatsa sites near Stanton, N. Dak. The collar of each of these three rims is decorated. Two show parallel, diagonal line decoration which in one case was made with a finely dentate tool or a roulette (pl. 7, *c*). Both have flat, undecorated lips. The third collared rim has a round lip, and the exterior bears parallel, diagonal cord impressions which cross collar and lip and extend to the interior of the rim.

Except in the case of this collared rim minority, decoration is uncommon on the rim unless one accepts the vertical ridges made by the grooved or throng-wrapped paddle as such (pl. 7, *e*). These impressions are generally very faint, but two show somewhat more distinct crisscross or check impressions, and one of these has been decorated with two parallel, horizontal lines made by impressing the still plastic paste with a cord-wrapped rod or thong (pl. 7, *f*). Both have flattened lips decorated with parallel, diagonal impressions made with a cord-wrapped twig.

Decoration, though usually lacking on the rim, is common on the lip, only seven (30 percent) being undecorated in this part of the vessel. In three cases the lips bear cord impressions, two of these having the impressions placed diagonally (pl. 7, *d*); the third lip, which is markedly thickened and flattened, is 1.6 cm. in width and bears four parallel, horizontal impressions.

Four lips show lines of dentate stamping. In one case these form parallel, diagonal lines across the lip, while a broken and incomplete lip shows two definite rows and a suggestion of a third, parallel to each other and encircling the mouth of the vessel. These impressions are made with a finely notched tool and the workmanship is skilled and true. Two other lips bear a single line of dentate impressions similarly placed but more deeply impressed and partly erased by smoothing.

Four lips have been deeply notched with a round tool which in three cases was pressed diagonally against the outer margin of the lip (pl. 7, *b*, *e*). In the remaining instance the tool was pressed diagonally across the lip. A cord-wrapped rod was used to form diagonal impressions across the lip in three instances. Two lips were incised with a thin, sharp tool; in one case the incisions are diagonal, while in the other two instances the diagonals are at opposed angles forming a zigzag pattern.

Five projectile points were recovered. Two are fashioned from the locally found "Knife River flint," two are made from chert or jasper, and the fifth is moss agate. All are triangular, side-notched points, one with a slightly convex base, two with straight bases, and two with concave bases (pl. 8, *f*, *g*, *i*, *j*, *k*).

Two complete blades came from the site (pl. 8, *h*, *l*), the larger one made of Knife River flint and the smaller one of chert or jasper. Both tools have straight bases. Above the base the sides are parallel from one-third to two-thirds of their length, after which they taper to a blunt point. The larger of the two measures 9.7 cm. in length, with a maximum width of 5.5 cm., while the smaller one is 5.0 cm. long and 2.4 cm. wide.

Knife River flint furnished the material for two of the five end scrapers. All these tools are planoconvex in cross section, with all edges carefully retouched and with a short, abrupt bevel on the working end (pl. 8, *m*, *n*, *o*). The largest measures 3.8 cm. in length, with a maximum width of 3.3 cm. The smallest is estimated to have been about 2.0 cm. in length with a maximum width of 1.8 cm. On one specimen the working edge is markedly beveled from side to side (pl. 8, *o*), a trait which Lehmer has noted from the Dodd site in South Dakota (Lehmer, 1954, p. 58).

One small, flat flake shows three edges carefully retouched to an abrupt scraping edge. In its broken state it measures 2.25 cm. in length, 1.05 cm. in maximum width, and is 2.5 mm. thick.

A large, oval flake of basalt, the edges of which are roughly chipped, may have served as a chopper. A handful of flakes show retouch on one or more edges. Some of these undoubtedly represent broken tools; others are merely modified flakes which would serve as cutters or scrapers.

In general the chipping technique is good, somewhat better than was required to make a serviceable tool. The retouch on the end scrapers is particularly good.

The number of specimens of worked bone and antler from the site is high in proportion to the number of sherds and objects of worked stone, but forms are few. Four bone objects have been made by cutting or chipping away the edges of large ribs, after which the bone was split into two flat slips and the edges and cancellous faces ground smooth. One end of these objects is smoothly rounded, the other shows a rough and jagged break in every instance (pl. 8, *a*, *b*, *c*, *d*). In length they range from 8.1 cm. to 16.0 cm. Mulloy has referred to apparently similar objects as knapping tools (Mulloy, 1942, pp. 66–70).

Two tubes have been made from bird bones by removing the ends in rather careless fashion. In one instance this was done by breaking after a shallow incision was made about the bone (pl. 8, *e*). The other object has the ends simply snapped off. Both are highly polished, the polish extending over the broken surfaces. Both measure 4.7 cm. in length, with a maximum diameter of 6 mm.

The tip of a deer antler tine shows a fresh break at the proximal end, and the point is much worn and highly polished. Objects of this type are commonly referred to as flaking tools, but the degree of polish present on this specimen does not suggest such use.

Two objects are probably scrap discarded in making bone tools or ornaments. Both are the articular ends of bones. One is the proximal end of a rib which has been removed from the shaft by the groove-and-break method, the other is the end of a bird bone which has been removed by grooving entirely through the shaft.

The cultural affiliation of this site is unknown at present. A vague and general relationship to Mandan and Hidatsa material is present in the artifacts, but the texture and tempering of the sherds differ markedly from sherds recovered from 32ML39, from Rock Village, and from the sites of the Hidatsa villages at the mouth of the Knife River. The majority of the rim forms are either rare or not present at 32ML39 and Rock Village, although a minority group closely resembles the bulk of the ware from those two sites. The relationship to the culture represented at the Hagen site is no closer than that to the Mandan-Hidatsa sites.

An unpublished manuscript report by Hecker, 1936, in the files of the State Historical Society of North Dakota contains references to three sites in Saskatchewan which appear to be more closely related to 32WI12 than any others on record. The first of these sites consists of a midden on a coulee slope. Many stone circles were reported to have been present on the adjacent upland before the level land was placed under cultivation. The second site, which has been extensively vandalized, is at the junction of Moose Jaw Creek with the Qu'Appelle River. The midden deposit there is described as being from 10.0 cm. to 1 m. in thickness and covered with 15.0 to 25.0 cm. of soil. The third site is about 2.5 miles east of Last Mountain Lake. There again the site consists of a midden on a coulee slope. The coulee is deep, narrow, and heavily wooded, and Hecker believed that a camp had been present in the bottom of the coulee—from the location, probably a winter camp.

No contact material is reported from these sites, a knife blade from the last being considered to be of native copper. No pottery is mentioned from the last site, and that from the others is described in rather general terms, but all traits given for it are present in the ware from 32WI12. Stone tools from the sites include end scrapers, drills, small blades, and small, side-notched projectile points. Side-bladed rib-knife handles, flakers, ornaments, rib-bone end-scraper handles, and a few miscellaneous pieces of indeterminate use make up the inventory of bone objects from the sites.

In these three Canadian and one North Dakota sites we appear to have the components of a new complex. It is to be hoped that controlled excavations at them can be made before the existing evidence is destroyed by relic hunters.

At present there is no evidence to indicate that the material recovered from the midden in the coulee at 32WI12 is related in any way to the tipi rings on the ridge above them. Comparative material from the stone circle site (and similar sites) is lacking. It must be pointed out, however, that there are few places in the coulee for a village site, and no other traces of habitation remains were found other than the rings. On the other hand, it is by no means certain that "tipi rings" were, in all cases, what their name indicates. However, the depth and richness of the midden deposit indicates a rather long period of occupation, one which should have left traces of other types of habitations had they existed.

## TEST EXCAVATIONS ON FORT BERTHOLD RESERVATION

When Lewis and Clark passed through the area of the present Fort Berthold Reservation in the spring of 1805, they noticed the remains of several recently occupied Indian camps. On April 17, when somewhat above the present reservation, Clark noted that they "saw the remains of Indian camps in every point of timbered land on the S. S." (Reid, 1947–48, p. 246).

During the course of the 1950 reconnaissance, it was found that most of the level, sheltered terrace spurs overlooking the flood plain of the Missouri River bore out Clark's testimony by showing the evidence of former occupation. Evidence ranged from the presence of a few flint chips at some sites, to stone tools, bits of crumbling animal bones, and an occasional sherd at others. In some of these sites, tests disclosed little or nothing below the surface, while other sites showed one or more thin occupation levels, seldom more than a foot below the surface.

During the summers of 1951 and 1952 field parties from the University of Montana, headed by Dr. Carling Malouf, excavated in two of these sites on the reservation, as well as at others outside its boundaries, and a preliminary report has appeared on the 1951 work (Malouf, 1951). In September and October 1951 two sites were tested by G. Hubert Smith and myself for the Missouri Basin Project, and a report on the findings at these sites is presented in the following pages.

These tests, in conjunction with the work of Malouf, indicate that small groups of hunters have utilized sheltered campsites along this stretch of the Missouri River over a period of time sufficiently long to allow changes in pottery styles to take place.

*32ME53* (*map 1 and pl. 9*).—This site is located on a small terrace 25 to 30 feet above the water level, on the right side of the Missouri River in the SE¼SW¼ sec. 21, T. 147 N., R. 89 W. The site, which lies between the east–west road and the riverbank, was in virgin sod at the time of our visit and may cover as much as 2 acres. At this point the river, coming from the north, strikes the bank and turns sharply to the northeastward, and the consequent lateral erosion has destroyed an unknown extent of the site. To the northwest is the low, brush-covered flood plain which also occupies several square miles to the east and northeast of the site. The latter area is somewhat higher than the flood plain to the northwest and carries many heavy stands of cottonwood and ash. Steep slopes due west and south of the site mask the exceedingly broken terrain which exists between the river and the uplands. The site is ideal for the location of a summer hunting camp, offering as it does a smooth, well-drained terrace on which to erect shelters and an ample supply of wood and water close at hand, while the fact that the site was unsheltered on the west would allow the prevailing wind to minimize the annoyance from mosquitoes.

At the time of its discovery during the course of the 1950 survey, a faint, dark line was exposed in the cutbank, at a depth of a foot below the surface. Eroding from this were flakes of flint and bone scraps. Smoothing the face of the bluff with a shovel yielded many more chips, bone splinters, and bits of charcoal. On the surface of the terrace slope immediately to the west a broken projectile point, a blade fragment, an end scraper, broken bits of burned granite, flint chips, and bone splinters were found.

A half dozen small but rather deep depressions 3 to 4 feet in diameter and a larger one nearly 25 feet across and 2 feet deep were present in the terrace. One of the smaller depressions was tested to a depth of 4 feet but yielded only mixed yellow and dark soil. It was later learned that a log cabin belonging to one of the original Indian allottees had stood over the larger depression some 50 years before and that the smaller depressions marked the location of caches in use during that occupation.

In 1951 two days were spent in making a limited test of the site, during which an area of about 80 square feet was uncovered. In making this test a grid of 5-foot squares was laid out on a base line oriented north–south. One complete square was excavated, as well as three incomplete squares that lay against the bluff edge. The squares were excavated by removing the earth in vertical slices to a depth of just above the dark soil containing the cultural remains. When the sterile soil had been removed over the entire square, the floor of the excavation was cleaned and smoothed by horizontal slicing. The dark layer was then removed by slicing vertically or horizontally according to conditions encountered.

The test showed that a dark, humus-stained layer ranging from 1 to nearly 4 inches in thickness overlay the site. Beneath this was a layer of fine-textured, light-colored soil which varied in thickness from as little as 1 inch to as much as 6 inches in one place. No cultural material was present in either layer. Beneath these two upper levels was a band of dark soil varying from 8.5 inches to a foot in thickness. This in turn rested on sterile yellow clay. This yellow clay sloped upward to both west and south as did the surface (fig. 4).

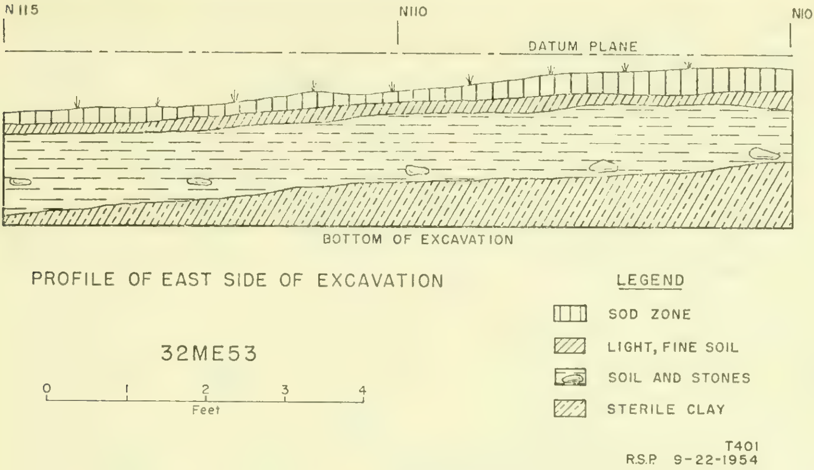


FIGURE 4.—Profile of east side of test excavation at 32ME53.

The dark soil which overlay the yellow clay yielded all the occupational evidence found, the lower part of the zone containing the bulk of it, although a fireplace was present in the upper part. This hearth, Feature 1, was a fire-reddened area, the redness gradually fading into a black smudge about the edges. Thus it was difficult to delimit the feature in the dark soil, but apparently it had measured about 2 feet in diameter. The center was not depressed, and the burning did not extend to more than an inch in depth. A small amount of finely broken charcoal lay upon the reddened area, but no white ash was present. The only associated material was a bison bone.

Only a few scattered flakes came from the upper part of the dark soil, practically all the occupation debris being concentrated in the lowermost few inches of this layer. At the north end of the trench the artifact-bearing level was found at a depth of 11 inches below the surface, but to the south the depth was somewhat greater. The level of heaviest occupation sloped upward both to the south and west, but the rise was not as great as that found on the surface, nor did it rise as fast as did the subsoil. At the extreme north end of the test the main occupation level was 4 to 5 inches above subsoil, while at the south end it lay just above the clean, yellow clay. The line of demarcation between the dark and the yellow soil, which was sharp at the north end of the trench, became somewhat blurred at the south end.

From this lower level in the dark soil came another hearth, Feature 2, as well as great quantities of fire-cracked quartz and granite cobbles, a good yield of chips of Knife River flint, and a few poorly preserved bone splinters. In all, 380 fire-broken fragments of stone came from this level in the approximately 80 square feet of area uncovered. These fragments, as well as the chips found, carried a heavy encrustation of lime on the lowermost side.

Feature 2 was a fire-reddened, circular area 25 inches in diameter. The center was depressed to a maximum depth of 2 inches, and this shallow basin held a few pieces of charcoal and an inch-thick layer of white ashes. The earth beneath showed thermal effects to a depth of 3 inches. Apart from the small quantity of charcoal and ash, the only directly associated objects were two chalcedony chips which were in the earth fill of the basin immediately above the ash.

The subsurface conditions encountered in this test suggest that the site had served as a camp spot during the time that the dark soil layer was accumulating. Early in this period the occupation had either been of some duration or had occurred often over a fairly long period. Later occupation was evidently much more sporadic. It seems safe to assume that all occupation of the site preceded White contact.

*32DU9* (*map 1*).—This site, located during the 1950 survey, yielded as surface finds at the time of discovery a broken blade, many flakes, bone splinters, fire-cracked rocks, and a few very small cord-impressed sherds. In order to determine more accurately its archeological potentialities, it was revisited by G. Hubert Smith and myself in October 1951, and 2½ days were spent in digging a test trench across the east end of the site.

This site is on the right side of the Missouri, on a small terrace remnant on the left side of Boggy Creek, at the point where that small tributary empties into the larger stream, in the NW¼SE¼ sec. 20, T. 150 N., R. 93 W. Along this stretch of the Missouri River the stream crowds close against the south side of the valley and the upland is cut through by numerous small creeks, the valleys of which have steep, often precipitous sides. This results in long arms of upland, separated from each other by deep coulees and ravines, thrusting out toward the river. The general aspect of the country is bold and rugged in the extreme. Nevertheless it was good country for the aboriginal hunter, teeming with both large and small game. The rugged terrain afforded stalking conditions for men armed only with short-range weapons, and the mouth of every valley offered a sheltered camping spot close to abundant supplies of wood and water.

The site occupies a small triangular terrace, the point of which is downstream (east), with a steep hill-slope to the west, the Missouri River a few yards to the north, and Boggy Creek coulee opening to the southward. The north side of the terrace drops sharply for some 30 feet to the few yards of willow-covered flood plain that separates it from the river shore. Judging from the extent of the thin, charcoal-marked line exposed in the north cutbank of the terrace, the site can be but little over a hundred yards in length (east–west) with a maximum width of 60 yards and an average of 30 yards.

A trench 30 feet in length, 5 feet in width, and oriented north–south was laid out across the terrace 50 feet west of the eastern tip and divided into 5-foot squares. This was dug to the undisturbed, yellow clay subsoil. The upper part of the terrace proved to be made up of a faintly laminated light and darker soil to an average depth of 5.5 inches, although the actual measurements show this layer to vary from a depth of 1 inch to about 9 inches, the deepest part of the zone being at the center of the terrace, the shallowest on the south slope. Scattered flint chips were found near the top of the layer, only an inch or two below the surface. Beneath the layer, and overlaying the sterile yellow clay subsoil, was a band of dark soil varying from 4 to 9 inches in thickness, but which most commonly measured close to 6 inches (fig. 5). Feature 1 was present in this layer, near the south end of the trench, at a depth of 10 inches below the surface. This was a pit 18 inches in diameter and 6 inches deep, filled with burned stones—flat limestone slabs and granite cobbles (pl. 10). The interstices between the stones were filled with rich, black earth and charcoal. The sides of the pit were blackened, but there was no reddening of the soil although among the stones which formed the bulk of the fill was a lump of red-burned earth an inch or two in diameter. This feature may represent the pit and stones of a sweat-lodge; certainly it was not a hearth.

Charcoal was scanty, but other camp and cultural debris was found throughout the dark layer, the first objects to be encountered coming out generally from a depth of 7 or 8 inches below the surface. Finds became more common at a depth of about 10 inches, and material was present to the underlying yellow clay. The very lowest part of the level, however, contained but little cultural material, and even the presence of some part of the scanty finds from that level may be due to rodent activity.

Apparently there were two occupations at this site. The latest is represented only by a few flint chips and the half of a large glass bead (pl. 11, *k*) which came from just below the surface. The earlier occupation, evidence of which was encountered at an average depth of about 8 inches, is represented by a handful of rather nondescript artifacts.

From the lowest level of the 150 square feet of area uncovered in the course of this test, came 10 very small sherds, one of which is from the rim of a vessel. In color they are dark gray to black. Tempering is with a sparse amount of fine sand. The paste is compact and inclined to be flaky in texture with some distortion occasionally present about the tempering particles. There seems to be no tendency toward crumbling, and the ware is hard and rather brittle.

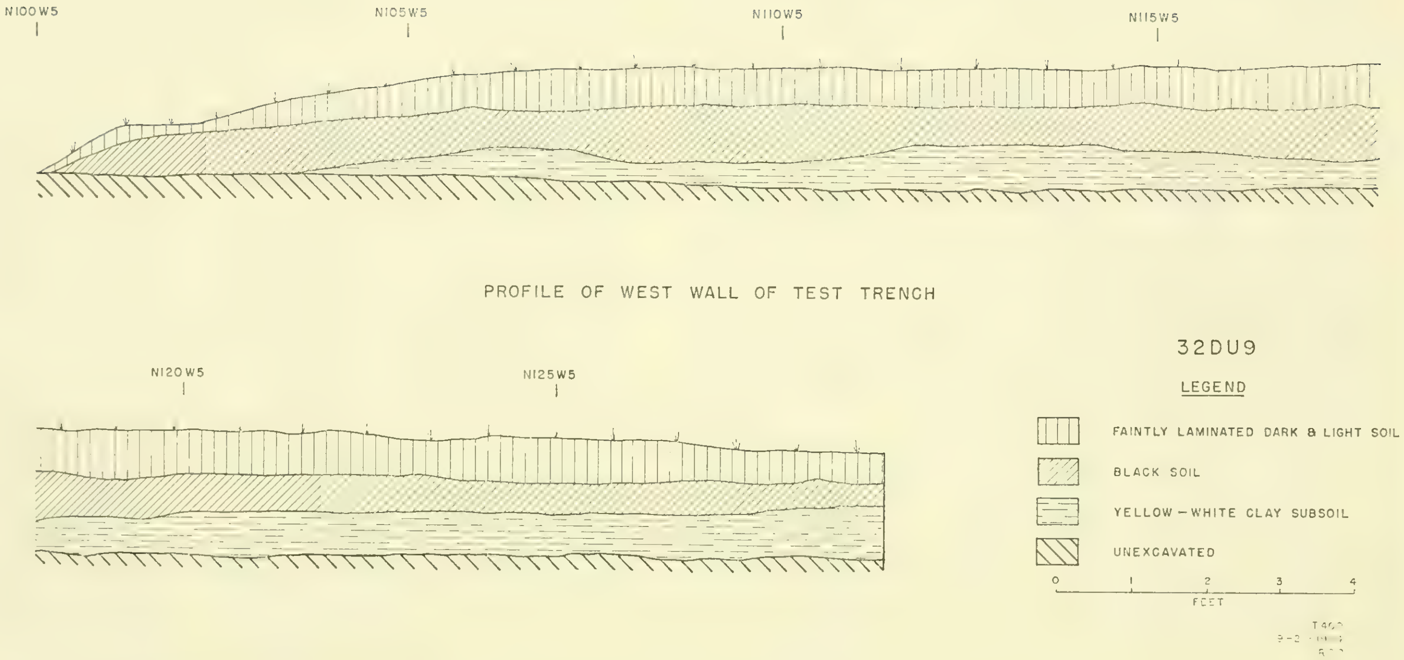

N100W5
N105W5
N110W5
N115W5
PROFILE OF WEST WALL OF TEST TRENCH
N120W5
N125W5
32DU9
LEGEND
FAINTLY LAMINATED DARK & LIGHT SOIL
BLACK SOIL
YELLOW-WHITE CLAY SUBSOIL
UNEXCAVATED
0
1
2
3
4
FEET

FIGURE 5.—Profile of west side of test trench at 32DU9.

The exterior surface of one sherd is simple-stamped, one shows a single cord-impressed line, three carry shallow incised lines, and two are smooth. It must be remembered that these sherds are very small and all might actually be parts of rims rather than from the body of a vessel. They measure from 3.5 to 4.5 mm. in thickness.

The one sherd that is definitely from a rim measures 18.5 mm. long by 12 mm. in width. It has a flattened lip, slightly thickened to the outside, crossed by diagonal cord-impressions. Immediately below the thickening of the lip the exterior surface shows a single horizontal cord-impression. The sherd has a maximum thickness of 6.5 mm. at the lip with a minimum thickness below that point of 5 mm. (pl. 11, *l*).

It is impossible to assign these tiny sherds to any cultural group now known from the area. They in no way resemble the ware from Rock Village, from the Nightwalkers Butte in the Bull Pasture, or from the Knife River Hidatsa sites, nor do they seem at all related to sherds from the Slant Village or the Double Ditch sites. At present they stand in a group by themselves.

The lower level of the site yielded, in addition to these sherds, about 2 quarts of unmodified chips and flakes, the great bulk of which were of Knife River flint, a local yellow-brown or caramel-colored chalcedony the surface of which changes to a blue, or in some cases, white, with age and exposure. A few chips were of light chalcedony and of agate, and there were a few pieces of fire-fractured granite. A tool from this level, made from the Knife River flint is deeply patinated. In shape it is asymmetrically triangular and may have served as a drill or perforator. It measures 4.6 cm. in length, with a maximum width of 2.6 cm. (pl. 11, *i*).

The two end scrapers from the test are of the common snubnosed type. One is markedly planoconvex in cross section (pl. 11, *e*), the other is thin and flat. Both have rounded working ends which are chipped to a short, abrupt bevel. This end is asymmetrical in the case of the thinner specimen, one side of the tool being longer than the other (pl. 11, *b*).

Two fragmentary blades that may have been originally almond-shaped in outline are planoconvex in cross section and chipped on only one face (pl. 11, *d*, *h*), while two others with the same outlines are flattened ellipses in cross section and bifacially flaked (pl. 11, *c*, *f*).

Seven specimens show more or less retouch on one or both faces and on one or more edges. Two of these appear to be fragments broken from large blades (pl. 11, *a*). The others may be fragments of broken tools but are more probably chance flakes which have received only enough attention to shape them into objects which would serve as cutting and scraping tools. Two flakes show irregular chipping on their thin edges, apparently from use, and suggest flakes used for cutting and scraping purposes without intentional modification of their original shape (pl. 11, *g*, *j*).

Animal bone was not common at the site, and the major portion of it consisted of small unworked splinters. Only two bones, both from bison, were identifiable. No bone or antler artifacts were recovered.

Although the yield from the site was scanty, it is felt that more work there would have been justified had time and funds permitted. The site was hard to reach and located in an isolated area where it would have been hard to maintain a camp, but a small party could undoubtedly have obtained much more artifactual material, which, in turn, would have thrown more light on one of the pottery-making groups who occupied the area in late prehistoric times.

## SUMMARY

In the preceding pages an attempt has been made to present the data from 31 sites in and about the Garrison Reservoir area in North Dakota, particular attention being paid to that section of the reservoir which lies within the Fort Berthold Indian Reservation. The bulk of the data presented was gathered by two Smithsonian Institution River Basin Surveys parties in 1947 and 1950, supplemented by a small amount of work in 1951. Cooperating agencies have been drawn on for a certain amount of additional data.

The site of the last Arikara earthlodge has been described and a floor plan presented. This appears to have been a ceremonial structure and has been compared with its predecessor at Like-a-Fishhook Village, with a still earlier structure excavated at Star Village, and with the traditional account of the manner of constructing these lodges. Although varying in minor details from each other, all were closely related structurally. A difference is suggested between these and earlier structures in the manner of framing the sides.

A hunting lodge which was found in the course of the surveys consisted of a four-post central foundation against which poles were leaned. These appear to have been covered with bark slabs over which earth was piled. It differs in no way from lodges noted by Maximilian in 1833, and in floor plan, it resembles structures excavated from both historic and prehistoric horizons in the central plains.

Five sites showing depressions believed to represent former eagle-trapping pits are listed. As far as could be told without excavation, these followed the general pattern of eagle-trapping pits as they are described in the literature, not only for the Mandan and Hidatsa, but for the Northern Plains groups in general.

Rock cairns are abundant in the area. Two, showing one or more lines of boulders extending from them, are described and the general pattern given. Others are noted in a section on tipi rings, with which they were associated. It appears probable that more than one motive existed for the construction of these features, and that a careful study of them will show chronological and cultural differences.

Circular stone outlines, known as tipi rings, are of common occurrence in the area. There seems to be good evidence that some of them, in some areas, resulted from the use of small boulders to anchor the covers of tipis, and it is noteworthy that a few of the outlines contained a central hearth. This, however, may not be their only origin. Some tribal groups are said to have marked the sites of eagle-trapping pits with a circular stone outline, other circles may be ceremonial in their origin and related to the outlines known as medicine wheels.

A midden test made by the 1947 party yielded a good return of cultural material which we are unable at present to assign to any known group. Although some sherds from the site resemble a few from sites which are attributed to the Mandan, the Hidatsa, and the Crow, the bulk of the ceramic remains do not closely resemble the bulk of ceramic material from any of those sites.

Each of the two other sites which were briefly tested showed evidence of two occupations. Very few artifacts were found at one of them, but fireplaces were present. At the other, 32DU9, a few nondescript sherds came from the lowest level of a short trench and there is every reason to believe that had it been possible to do more work there, valuable additional evidence bearing on the prehistory of this section of the Plains would have been recovered.

With reference to time perspective, none of the earthlodges described is old; all were constructed within the past 100 years. The hunting lodge is even more recent, although it is apparently the end of a line of structures which there is some reason to believe may reach well into the past. At present it is impossible to suggest dates for the rock cairns and the circular stone outlines known as tipi rings. It may be pointed out, however, that finds of trade material are seldom reported from them, suggesting that the majority date before 1800. Much more work on the problem of the tipi rings and the rock cairns is needed. Little is known at present regarding the limits of their distribution. Few such sites have been excavated and upon even fewer have reports been published.

There is, at present, insufficient evidence to allow dating of the three sites tested. One yielded contact material, but, as at other sites of this type where trade material was present, it came from the uppermost inch or two of soil. Much more evidence from such sites will be required before the culture or cultures represented can be adequately described and properly placed in the Plains cultural sequence. Unfortunately, such data may never be forthcoming, for even as these lines are being written the rising waters of the Garrison Reservoir are rapidly placing most of the sites beyond the reach of the archeologist.

## REFERENCES CITED

BOWERS, ALFRED W.
1950. Mandan social and ceremonial organization. Univ. Chicago Publ. Anthrop., Soc. Anthrop. Ser. Chicago.
CHAMPE, JOHN L.
1949. White Cat Village. Amer. Antiq., vol. 14, No. 4, pp. 285–292.
CURTIS, E. S.
1909. The North American Indian. Vol. 5. Norwood, Mass.
DENSMORE, FRANCES.
1923. Mandan and Hidatsa music. Bur. Amer. Ethnol. Bull. 80.
EWERS, JOHN C.
1944. The Blackfoot war lodge: Its construction and use. Amer. Anthrop., vol. 46, No. 2, pt. 1, pp. 182–192.
1955. The horse in Blackfoot Indian culture. Bur. Amer. Ethnol. Bull. 159.
GILMORE, MELVIN R.
1931. The Arikara tribal temple. Pap. Michigan Acad. Sci., Arts and Letters, vol. 14, pp. 47–70.
HECKER, THAD C.
——— Some ceramic cultures of Canada's prairie provinces. Unpubl. MS. in files of State Hist. Soc. of North Dakota, 1932.
HILL, A. T., and METCALF, GEORGE.
1941. A site of the Dismal River Aspect in Chase County, Nebraska. Nebraska Hist. Mag., vol. 22, No. 2, pp. 153–215.
HOFFMAN, J. JACOB.
1953. Comments on the use and distribution of tipi rings in Montana, North Dakota, South Dakota and Wyoming. Montana State Univ., Anthrop. and Sociol. Pap. No. 14.
HOWARD, JAMES H.
1954. Yanktonai Dakota eagle trapping. Southwestern Journ. Anthrop., vol. 14, No. 1.
KAPPLER, CHARLES J.
1904. Laws and treaties. Vol. 1, Laws. Washington.
KEHOE, THOMAS F.
1954. Stone "medicine wheels" in southern Alberta and the adjacent portion of Montana: Were they designed as grave markers? Journ. Washington Acad. Sci., vol. 44, No. 5, pp. 133–137.
1960. Stone tipi rings in north-central Montana and the adjacent portions of Alberta, Canada: Their historical and ethnological aspects. Bur. Amer. Ethnol. Bull. 173, Anthrop. Pap. No. 62.
LEHMER, DONALD J.
1954. Archeological investigations in the Oahe Dam area, South Dakota, 1950–51. Bur. Amer. Ethnol. Bull. 158, Riv. Bas. Surv. Pap. No. 7.

LOWIE, ROBERT H.

1913. Societies of the Crow, Hidatsa and Mandan Indians. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 11, pt. 3, pp. 145–358.

1917. Notes on the social organization and customs of the Mandan, Hidatsa and Crow Indians. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 21, pt. 1, pp. 1–99.

1919. Sun dance of the Shoshoni, Ute, and Hidatsa. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 16, pt. 5, pp. 385–431.

1922. The material culture of the Crow Indians. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 21, pt. 3, pp. 201–270.

MALOUF, CARLING.

1951. Archeological studies of aboriginal occupation sites in northwestern North Dakota. Montana State Univ. Anthrop. and Sociol. Pap. No. 7.

MATTHEWS, WASHINGTON.

1877. Ethnology and philology of the Hidatsa Indians. U.S. Geol. and Geogr. Surv., Misc. Publ., vol. 7. Washington, D.C.

MAXIMILLIAN, *see* WIED-NEUWIED, MAXIMILLIAN ALEXANDER PHILIPP, PRINZ VON,

MCCLINTOCK, WALTER.

1910. The Old North Trail. London.

MONTGOMERY, HENRY.

1908. Prehistoric man in Manitoba and Saskatchewan. Amer. Anthrop., n.s., vol. 10, No. 1, pp. 33–40.

MULLOY, WILLIAM.

1942. The Hagen site: A prehistoric Indian village on the Lower Yellowstone. Univ. Montana Stud. Social Sci., No. 1.

1952. The Northern Plains. *In* "Archeology of the Eastern United States," James B. Griffin, ed., pp. 124–138. Chicago.

NELSON, N. C.

1943. Contribution to Montana archeology. Amer. Antiq., vol. 9, No. 2, pp. 162–169.

REID, RUSSELL.

1947–48. Lewis and Clark in North Dakota. Bismarck, N. Dak.

REPORT OF THE COMMISSIONER OF INDIAN AFFAIRS FOR THE YEAR 1862.

1863. Washington, D.C.

SCHULTZ, JAMES WILLARD.

1922. Seizer of eagles. Boston and New York.

STRONG, WILLIAM DUNCAN.

1940. From history to prehistory in the northern Great Plains. Smithsonian Misc. Coll., vol. 100, pp. 353–394.

U.S. DEPARTMENT OF AGRICULTURE.

1941. Climate and man. Yearbook of Agriculture. Washington, D.C.

WEDEL, WALDO R.

1934. Contributions to the archaeology of the Upper Republican Valley, Nebraska. Nebraska Hist. Mag., vol. 15, No. 3, pp. 132–256.

WIED-NEUWIED, MAXIMILIAN ALEXANDER PHILIPP, PRINZ VON.

1906. Travels in the interior of North America. *In* "Early Western Travels," Reuben Gold Thwaites, ed. Vols. 22–24. Cleveland.

WILL, GEORGE F.

1924. Archeology of the Missouri Valley. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 22, pt. 6, pp. 285–344.

WILL, GEORGE F., and HECKER, THAD C.

1944. Upper Missouri River Valley aboriginal culture in North Dakota. North Dakota Hist. Quart., vol. 11, Nos. 1 and 2, pp. 5–126.

Will, G. F., and Spinden, H. J.

1906. The Mandans: A study of their culture, archaeology and language. Harvard Univ., Pap. Peabody Mus. Amer. Archaeol. and Ethnol., vol. 3, No. 4, pp. 81–219.

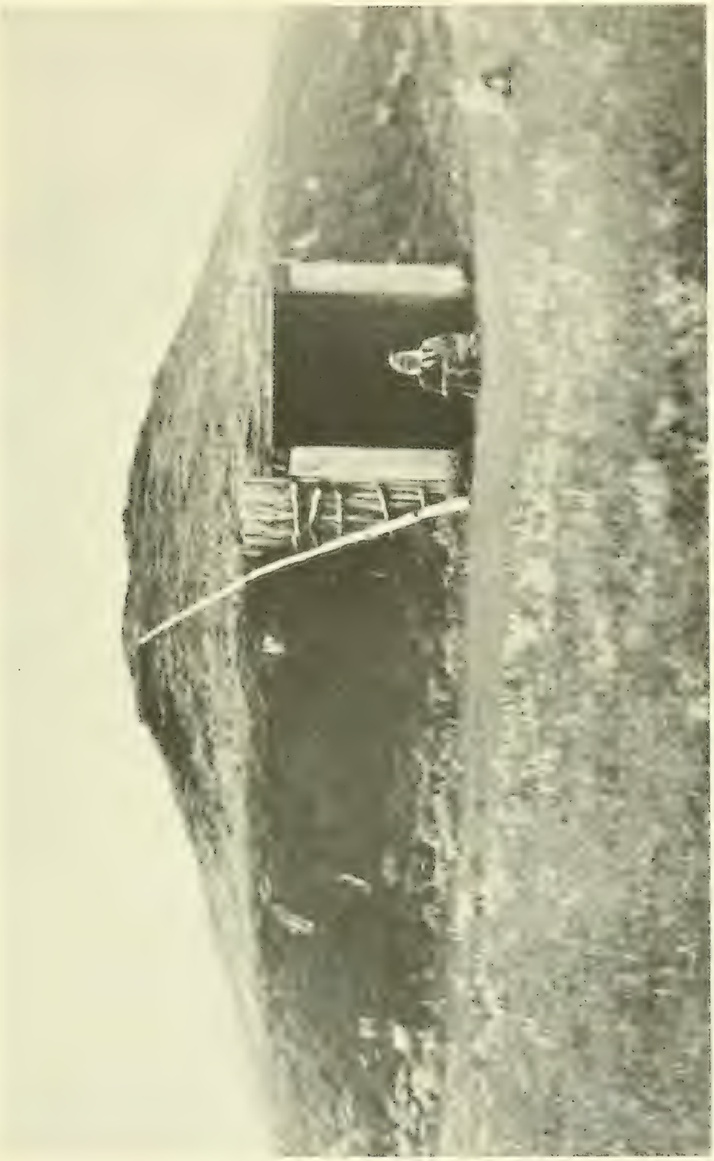
Wilson, Gilbert L.

1917. Agriculture of the Hidatsa Indians: An Indian interpretation. Univ. Minnesota Stud. Social Sci., No. 9.

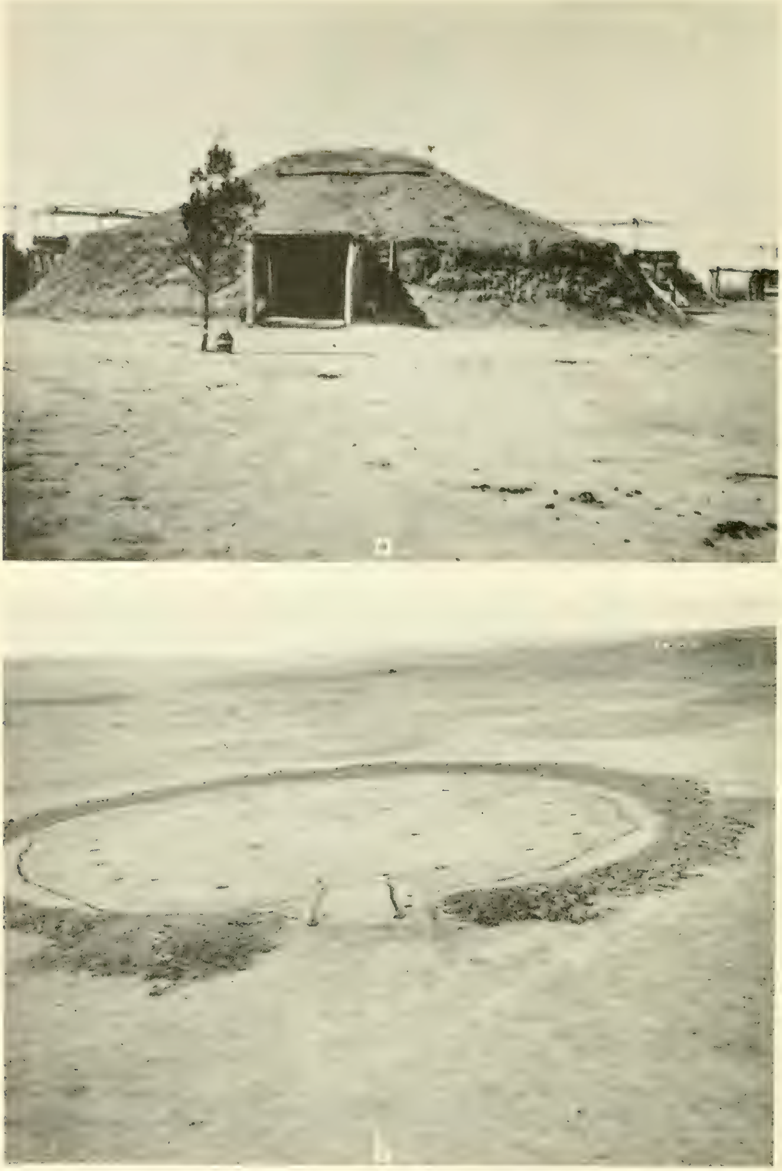
1924. The horse and the dog in Hidatsa culture. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 15, pt. 2, pp. 123–311.

1928. Hidatsa eagle trapping. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 30, pt. 4, pp. 97–245.

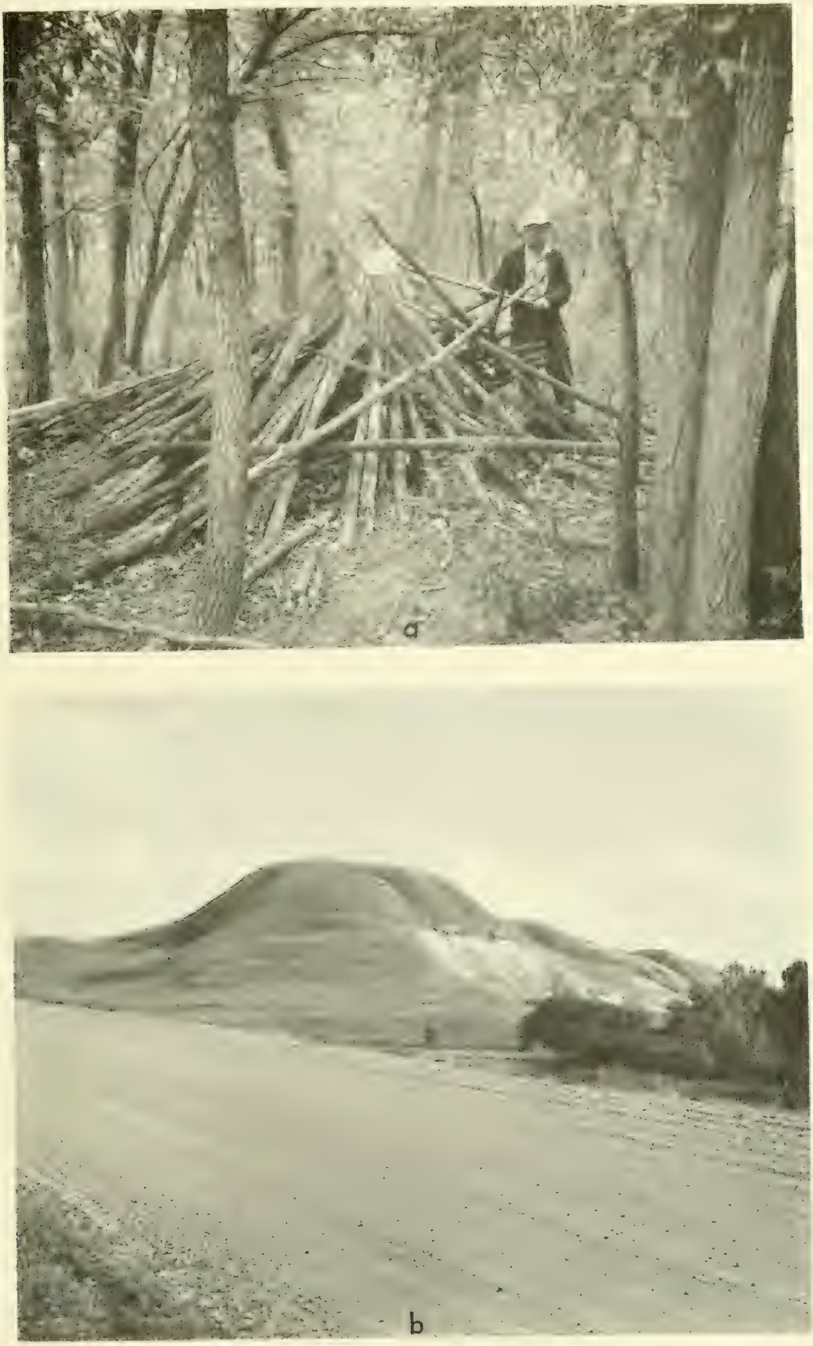
1934. The Hidatsa earthlodge. Bella Weitzner, ed. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 33, pt. 5, pp. 341–420.



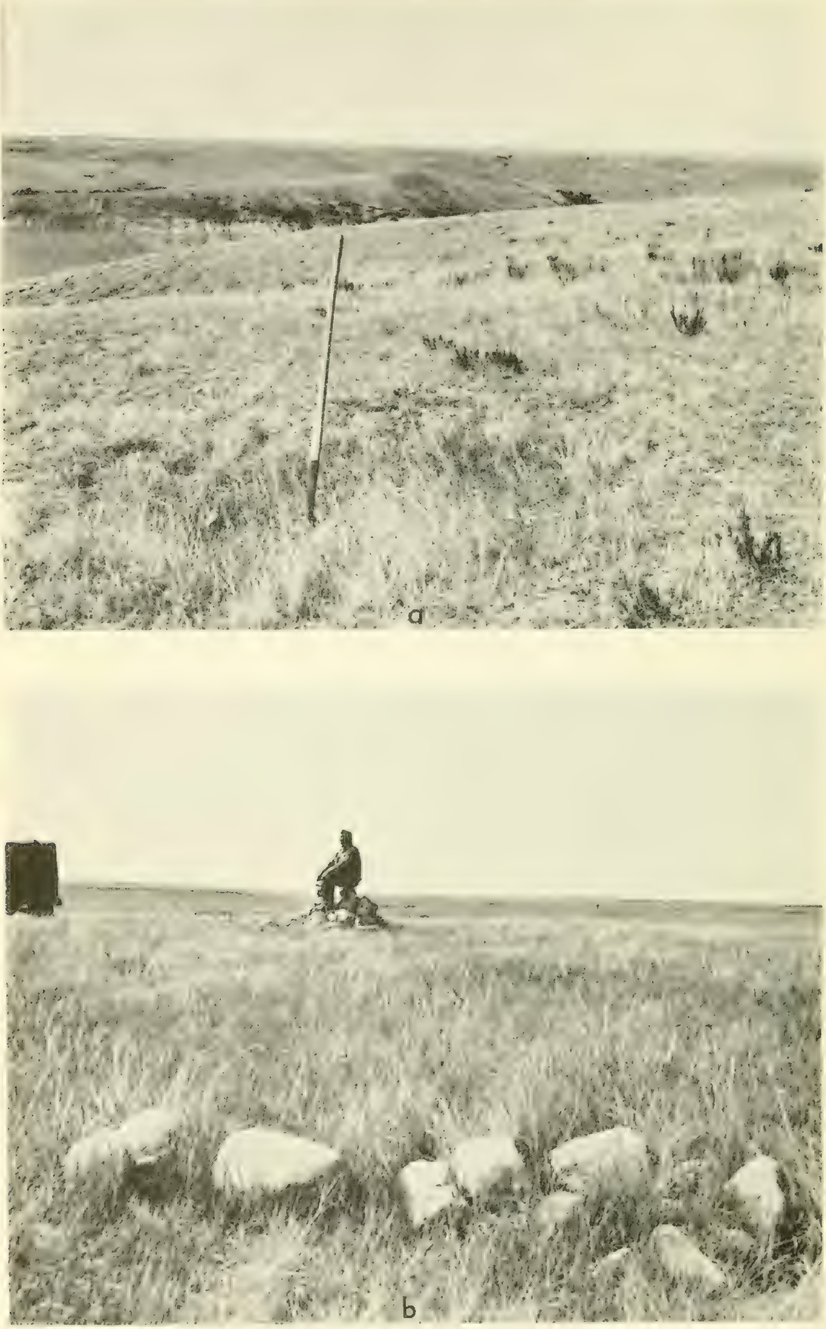
The last Arikara earthlodge (photograph by Frank Fiske; courtesy of Mrs. Angela Fiske).



*a*, Arikara ceremonial lodge at Like-a-Fishhook Village (photograph by Morrow; courtesy of the State Historical Society of North Dakota). *b*, Floor of Arikara ceremonial lodge at Star Village.



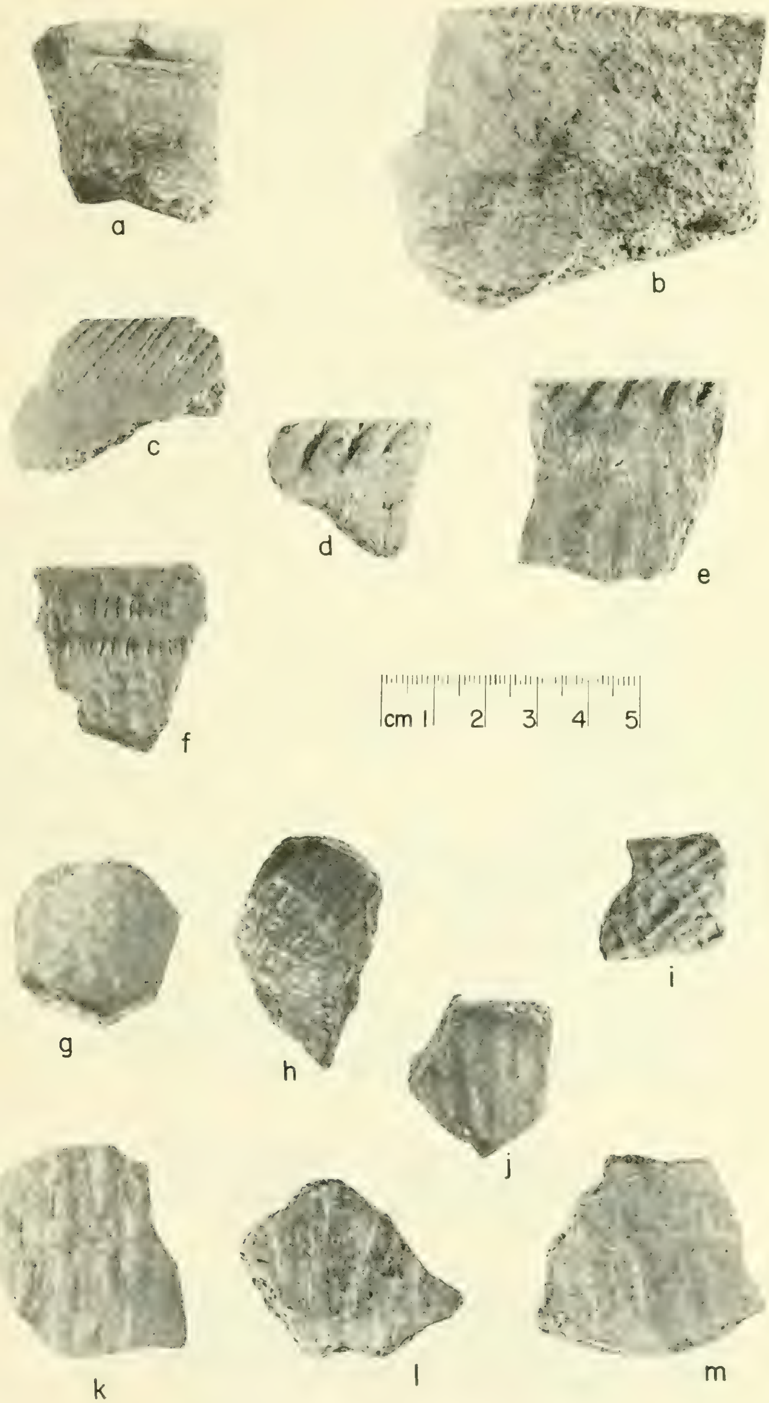
*a*, Ruin of hunting lodge, 32DU25. *b*, The Slides.



*a*, Depression marking site of former eagle-trapping pit. *b*, Rock cairn at 32ME62.

*a*, Stone circle at site 32DU8. *b*, Stone circle at site 32ML34.

Test in midden area, 32WI12.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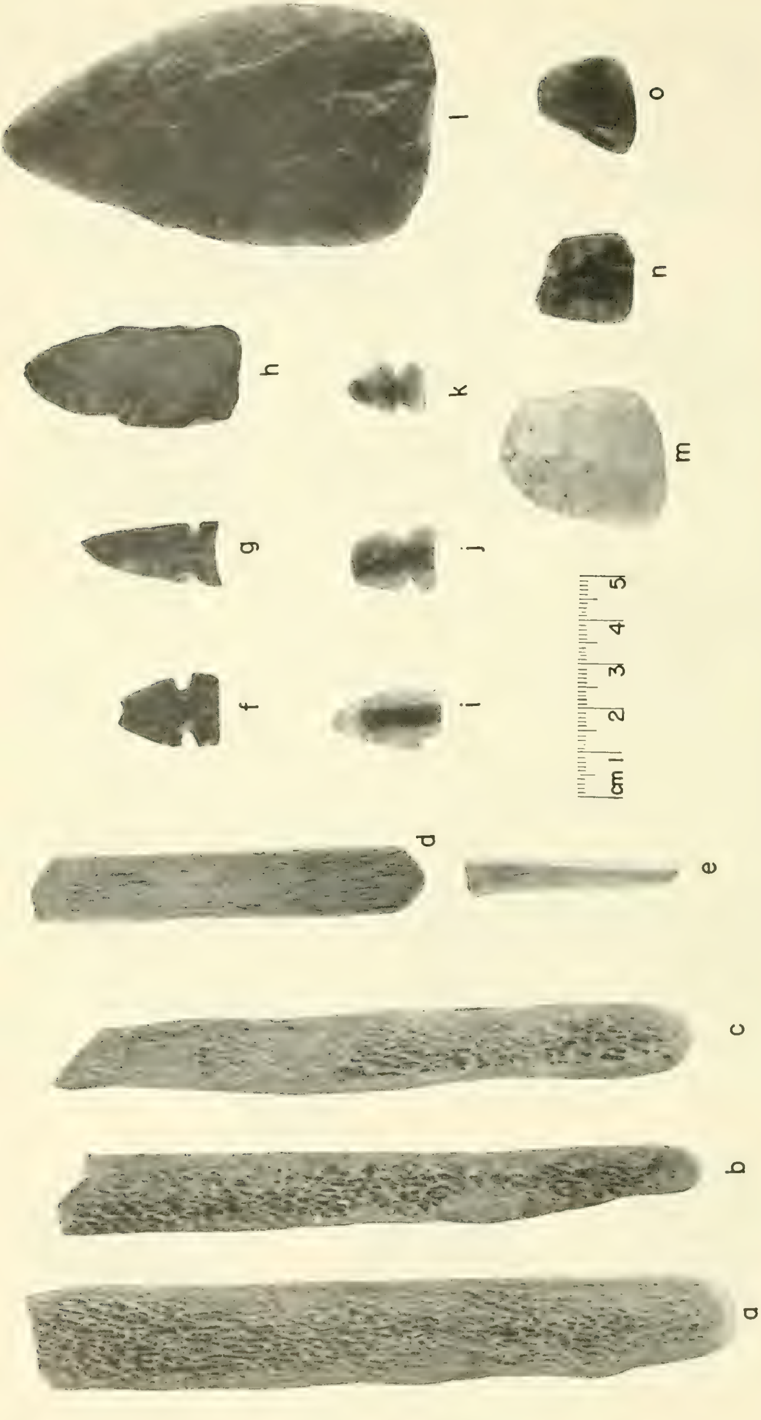
Sherds from test at 32WI12.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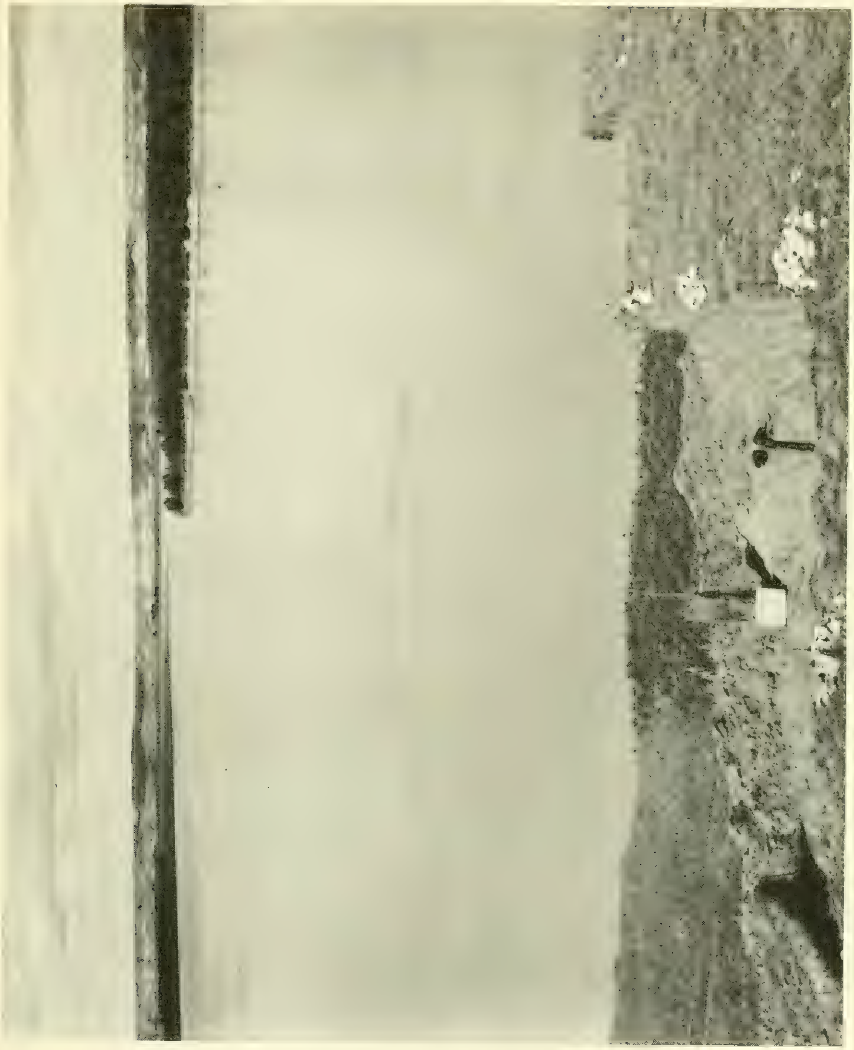
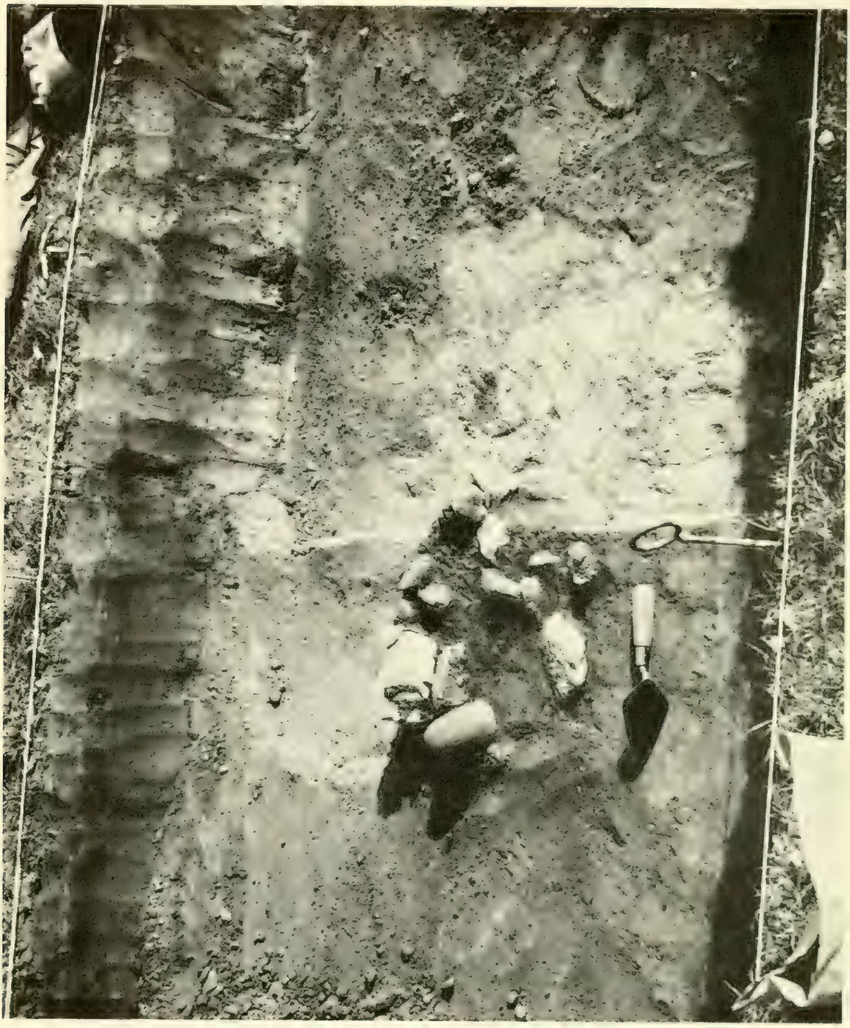
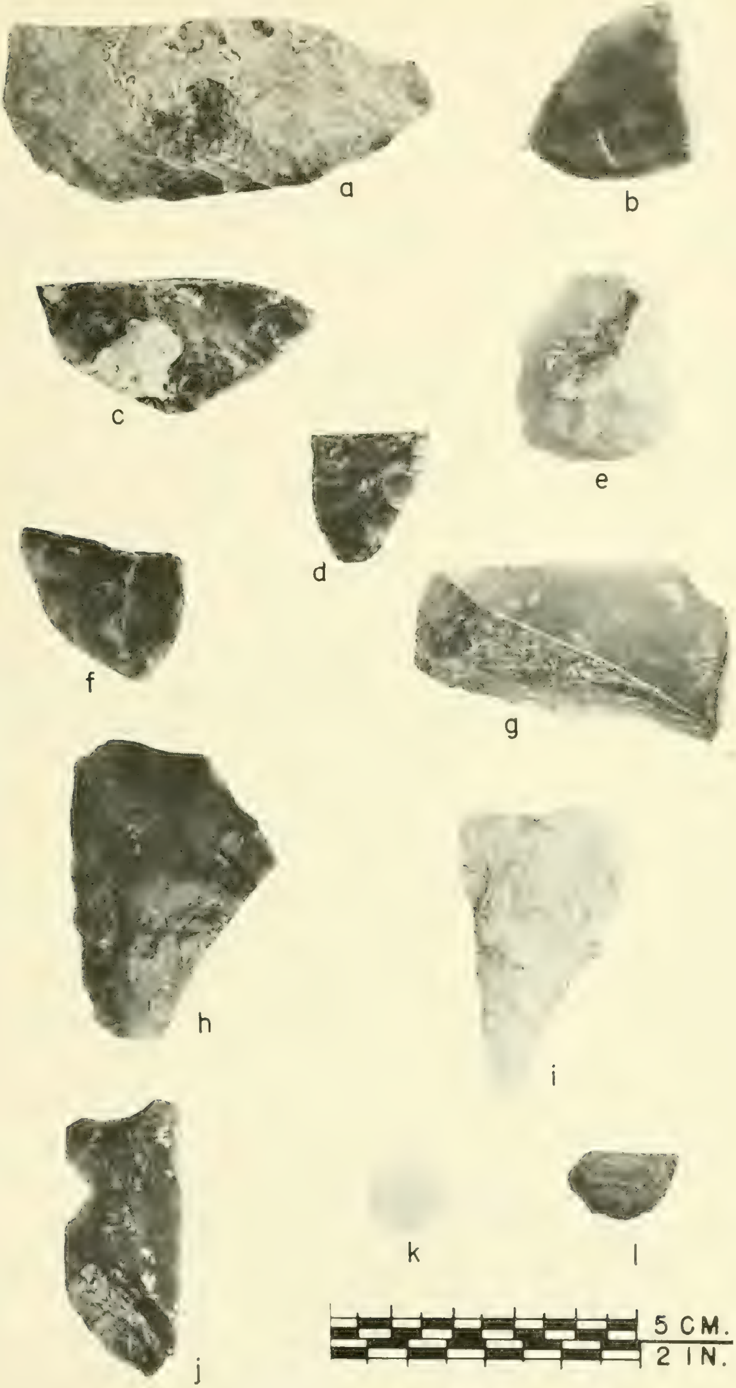
Stone and bone artifacts from 32WI12.



Test excavation at 32ME53.



Feature 1, 32DU9.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Artifacts from 32DU9.

SMITHSONIAN INSTITUTION
Bureau of American Ethnology
Bulletin 185

## River Basin Surveys Papers, No. 27

# Star Village: A Fortified Historic Arikara Site in Mercer County, North Dakota

By GEORGE METCALF

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# STAR VILLAGE: A FORTIFIED HISTORIC ARIKARA SITE IN MERCER COUNTY, NORTH DAKOTA[1]

By George Metcalf

## INTRODUCTION

As a part of the River Basin Surveys program a field party of the Missouri Basin Project, Smithsonian Institution, conducted excavations at two sites in Mercer County, N. Dak., during the summer of 1951. Funds for the work were provided by the National Park Service. Excavation at the first of these sites, Rock Village (32ME15), had been started in 1950 by a similar unit under the leadership of G. Ellis Burcaw.

Excavation at the second site, Star Village (32ME16), was carried on during the period August 20 to October 25, 1951, most of the time with but a small crew. This site was the last to be occupied by the Arikara prior to their joining the Mandan and Hidatsa at Like-a-Fishhook Village (32ML2). Excavations at the latter site by the State Historical Society of North Dakota during 1950 and 1951 had yielded little pottery and but few objects of strictly aboriginal origin. It was hoped that the Star Village site would yield a good series of artifacts that could be unquestionably assigned to the Arikara. The artifact yield proved to be disappointingly meager and consisted largely of trade goods and of objects which, it is suspected, antedate the village. Data were obtained, however, on details of house construction and village arrangement.

The field unit which carried on the investigation of the site was headed by Donald D. Hartle, assisted by Lynd J. Esch, graduate student, University of Indiana. At the time, I was engaged in a reconnaissance of the area, also serving as field assistant at the beginning and at the close of operations there, and visited the site on numerous occasions while excavation was in progress.

It is impossible to acknowledge adequately the many courtesies received by the excavation unit. We wish, however, to thank particularly the officials of the United States Indian Service stationed at the Fort Berthold Indian Reservation and the members of the Tribal Council of the Three Affiliated Tribes for permission to excavate on the reservation. Russell Reid, Superintendent of the State Historical Society of North Dakota, was most generous in making the files of the Society available, and to that Society we are further indebted for permission to reproduce the A.B. Stout map of the site. To Vincent Malnouri, Elbowoods, N. Dak., we are indebted for permission to excavate the site. To Alfred Fox, Pete Star, John Star, and Burton Bell of Beulah, N. Dak., thanks are due for telling members of the field party many of the traditions concerning the site. It is a pleasure to acknowledge our indebtedness, also, to the members of the Ben Jones, Alfred Fox, and Renner families for their numerous favors to the field unit. To the many persons not named here, who helped to make the 1951 field season both pleasant and profitable, we offer our sincere thanks. The cooperation received from every quarter was most gratifying and is deeply appreciated.

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[1] Submitted March 1958.

For aid in preparing this report, I wish particularly to acknowledge my indebtedness to G. Hubert Smith and Dr. Robert L. Stephenson, of the Missouri Basin Project, and to Drs. Waldo R. Wedel, Clifford Evans, and Betty Meggers, of the United States National Museum, without whose encouragement, advice, and criticism it would never have been completed. Alan R. Woolworth, then at the State Historical Society of North Dakota and now with the Minnesota State Historical Society, read the manuscript and offered invaluable suggestions from his knowledge of the area and its history. I am most grateful to Dr. Theodore E. White, National Park Service, who identified the animal bones; Dr. J. P. E. Morrison, Division of Mollusks, United States National Museum, who identified the shell remains; C. Malcolm Watkins, Division of Ethnology, United States National Museum, who identified the glass and ceramic material; and Harold L. Peterson, Staff Historian, National Park Service, for suggestions in regard to other trade items from the site. Not least of those to whom I owe thanks for aid in preparation of the manuscript are Mrs. Jeraldine Whitmore, Division of Archeology, United States National Museum, who typed and retyped the manuscript, and Herman Harpster and Mrs. Evelyn Bauman Stewart, of the Missouri Basin Project, who made the photographs and prepared the plates. To all these people I am sincerely grateful.

## ENVIRONMENTAL BACKGROUND

Mercer County lies in the Great Plains province, in the west-central part of North Dakota, 75 miles east of the Montana line and approximately 100 miles south of the Canadian border. It is divided by the eastward-flowing Knife River, which empties into the Missouri near the county-seat town of Stanton. Much of the area is a high, rolling prairie with well-developed drainage ways, although south of the

Knife River dune-sand areas are present. The highlands, with an altitude of 2,000 feet above sea level, formerly carried a heavy short-grass cover in which blue grama predominated. Today most of the upland is under cultivation, with spring wheat the most important crop and with lesser acreages devoted to corn, flax, oats, and barley. However, occasional early frosts and low annual precipitation combine to make agriculture hazardous west of the Missouri River in North Dakota.

The Missouri River, which forms the northern and eastern boundaries of the county, flows through a valley some 300 feet in depth and from 1 to 3 miles in width. The stream is bordered by a low, alluvial flood-plain of variable width but often of great extent, covered with a dense growth of willows and in the higher parts with groves of deciduous trees, cottonwood, willow, ash, elm, and boxelder.

Rising sharply from the flood-plain to a height of some 30 feet is a terrace seldom exceeding a half-mile in width and often much less. This originally carried a heavy short-grass cover of the same type as that on the uplands but is today largely under cultivation. It is upon this level or slightly sloping terrace that the remains of former aboriginal villages and camps are most commonly found. The terrace slope often carries a heavy growth of chokecherries, juneberries, buffaloberries, and wild currants. Clumps of wild plum bushes are found on the drier parts of the flood-plain as well as on the terrace slopes, and most of these fruits may be found growing in the coulees as well as along the margins of the upland.

The valley sides are deeply eroded and form a belt of hills, often bold and rugged in outline, between the upland and the valley bottom. The drainage ways, or coulees, cut through this hilly belt and extend far back into the uplands, while their lower courses cut the bordering terrace into segments. The coulee heads, as well as the more gentle slopes of the hills, frequently show small wooded areas, ash being the most common species of tree in these situations. Near the edge of the uplands scattered groups of quaking aspen are sometimes found, as well as an occasional oak. Junipers are present on the more precipitous slopes.

The climate is dry and characterized by long, cold winters and short, cool summers. Temperature records for the county show extremes of 105° F. to –50° F. The average dates for the first and last killing frost are September 14 and May 28, giving an average frost-free season of 109 days. Records kept over a 24-year period show an average annual precipitation of only 13.83 inches, with slightly over 55 percent of this occurring during the months of May, June, and July. Prevailing winds are from the northwest.[2]

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[2] Climatic data is summarized from Climate of North Dakota, by Frank J. Bavendick, in Climate and Man, pp. 1045–1054, 1941 Yearbook of Agriculture, Washington, 1941.

Small game is abundant in the area and was formerly more so. All open water is covered with migrating waterfowl at the proper season; grouse and the nonnative ring-neck pheasant are plentiful, but the prairie chicken has been greatly reduced in numbers in recent years. Jackrabbits and cottontails still furnish sport for the hunter.

Today only the white-tailed deer remains to represent the many species of big game with which the area once teemed. The bison are now represented only by an occasional skull bleaching in a coulee bottom; and with the bison have vanished the antelope, mule deer, and elk found by Lewis and Clark in this area. The mountain sheep and mountain lion, as well as both the black and the grizzly bear, made their last stand in North Dakota in the Badlands along the Missouri and Little Missouri Rivers immediately north and west of Mercer County, but all have been extinct in the State since about 1900.

Muskrat, skunk, beaver, and badger are still present in the area in some numbers, but raccoon are rare. The wolf, wolverine, and otter have long since disappeared, but the howl of the coyote is still to be heard on moonlight nights, and a few bobcats are present in the dense thickets which fringe the Missouri River.

The northwest corner of Mercer County lies within the boundaries of the Fort Berthold Indian Reservation, established by Executive Order in 1870 for the Mandan, Hidatsa, and Arikara, or as they are officially known, the Three Affiliated Tribes. This reservation as originally established ran from a point on the Missouri River 4 miles below the Fort Berthold Indian Village (Like-a-Fishhook Village, 32ML2) 3 miles in a northeast direction, then in a line northward to the mouth of the Little Knife River, then along the left bank of the Missouri to the mouth of the Yellowstone River. Here the line turned westward and followed the south bank of the Yellowstone to the Powder River. That stream was then followed to the point at which the Little Powder River united with it. From the mouth of the Little Powder the boundary followed a direct line to its starting point, 4 miles below Fort Berthold (Kappler, 1904. vol. 1, pp. 881–883).

This original reservation area has been reduced and reshaped by Executive Order and acts of Congress until just prior to the taking of land for the Garrison Reservoir there remained a gross area of 643,368 acres lying on both sides of the Missouri and Little Missouri Rivers in North Dakota. Within its boundaries are included parts of McLean, Mercer, Mountrail, McKenzie, and Dunn Counties. The boundaries are irregular, but the area has a maximum length of 50 miles, east–west, and a maximum width of 36 miles. About 1950 the land ownership consisted of 63,683 acres alienated from trust status, 550,096 acres of individual trust allotment, 27,729 acres of tribally owned trust land, and 1,860 acres of Government reserves. Right-of-way for the Garrison Reservoir necessitated the acquisition by the

Federal Government of over 150,000 acres of Indian land, and the filling of the reservoir will split the reservation into five residual segments (Anon., 1953).

In 1804 Lewis and Clark found the three tribes occupying this reservation already greatly reduced in numbers by smallpox. At that time the Arikara, who were then just south of the present North Dakota boundary, were reported to be living in three villages with a total population of 2,600, of whom more than 600 were warriors. The Hidatsa, with about the same population, were in three villages at the mouth of the Knife River, and the Mandan, numbering about 1,250 were in two villages a short distance below. By 1900 the population of the three tribes had been reduced to 1,095, made up of 395 Arikara, 450 Hidatsa, and 250 Mandan. In 1905 they numbered 1,100. Since that time they have increased steadily, and according to the Official Agency Census of 1950 they showed a total of 1,616, divided as follows: Arikara, 550; Hidatsa, 720; Mandan, 346. However, intertribal and interracial marriage has progressed to a point where tribal membership counts are of little significance today.

## ABORIGINAL OCCUPANCY OF THE AREA

When Verendrye reached the Mandan in 1738 they seem to have been living in the neighborhood of the present Bismarck, N. Dak. Sites which appear at present to be attributable to them are present for many miles along the Missouri River below that point, suggesting a slow migration upstream at an earlier period. Although the date at which the Mandan-Hidatsa occupancy of the region began is not known, it has been of sufficient duration to allow their myths and legends to become localized. For example, Dog Den Buttes, the mouth of a small stream known variously as Short Missouri and Malnouri Creek, and Red Butte are given as localities where legendary events took place or where supernaturals lived. In 1804 Lewis and Clark were shown a site near the present city of Mandan, N. Dak., and were informed by an Arikara chief that it had been occupied by the Mandan who had abandoned it 40 years before. These explorers found the Mandan and Hidatsa in several villages at and below the mouth of Knife River, in the present Mercer and McLean Counties, the greater number of them living on the west side of the Missouri. In 1796 John Evans spent the winter at the Mandan villages, a short distance below the mouth of the Knife River, and British traders seem to have reached them there at a somewhat earlier date.

In 1829 a trading post, Fort Clark, was built by the American Fur Company near the Mandan village, and that tribe continued to inhabit the site until they were almost exterminated by the smallpox epidemic of 1837. The survivors scattered, some taking up residence for a time with the Arikara while others went to the Hidatsa. Eventually they drew together in one small village above the site of that at Fort Clark, and the Fort Clark village was burned by a Dakota war party in January 1839 (Abel, 1932, p. 181).

For a few years following the smallpox epidemic we know little of the movements of the Hidatsa. There are hints that some were at Rock Village (32ME15) and at another village to the west and across the river, but the evidence is equivocal (Libby, 1908, p. 465). About 1845 the Hidatsa, accompanied by a few Mandan (Wilson, 1934, p. 351), settled at the Like-a-Fishhook bend of the Missouri River and built a village there which was named after that geographical feature. Later the remainder of the Mandan joined them there, and Fort Berthold was established to handle the trade of the two tribes.

The Arikara are relatively latecomers to the region. Precontact and early contact sites which are tentatively assigned to this tribal group are common in South Dakota to a point well below the present town of Chamberlain. When visited by Trudeau late in the 18th century, this tribe or a part of it, lived near the mouth of the Cheyenne River, but at about that time some of them seem to have migrated north and were living on the banks of the Missouri between the Heart and Knife Rivers. Lewis and Clark were shown village sites in that area which were ascribed to that tribe and which had not been long abandoned (Reid, 1947–48, pp. 36–39). In 1804 they had retreated downriver from this position and were living in three villages between the Grand and Cannonball Rivers when visited by Lewis and Clark. By 1823 they were concentrated in two adjacent villages above the mouth of Grand River, in South Dakota. In that year their attack on a party of traders brought on the Leavenworth campaign in which their double village was shelled. They then abandoned this site, and for the next few years the record of their movements is a confused one. Apparently some of them soon reoccupied the former village above the mouth of the Grand, while others went to Nebraska and joined their kinsmen, the Skidi Pawnee. In 1837, apparently again a united group, they moved north, and after the decimation of the Mandan by smallpox and the destruction of their village by the Dakota, the Arikara occupied the site and built a new village there.

In 1861 the Arikara again moved upstream, abandoning the village at Fort Clark, and were invited to build their village beside the Mandan and Hidatsa. This invitation they declined and spent the winter of 1861–62 in two winter villages above the present settlement of Nishu (Libby, 1920, pp. 181, 191, 203). One of these, 32ML38, stood on what was at that time an island which, owing to stream shifting and silting of the old channel, has since become part of the left bank of the river (Will and Hecker, 1944, p. 84). In 1952 its location was still known to many of the descendants of the builders, some of whom still identified it by its old name of Heart Village.

The following spring the Arikara crossed the Missouri River and moved a few miles downstream to the wide flat terraces above and across the stream from Like-a-Fishhook Village, where they began the construction of two villages, one of which, 32ME16, is the site considered in this paper. In August 1862, as a result of a Dakota attack, the two villages were abandoned and the Arikara accepted the invitation of the Mandan-Hidatsa group to join them at Like-a-Fishhook Village. There they remained until moved onto separate allotments about 1886.

The area was well known to a number of other tribal groups who raided, visited, and some of whom also hunted and wintered in this region. The Dakota, particularly the Yanktonai, were raiding the Mandan and Hidatsa villages at the mouth of the Knife River before 1804 and later became an ever-present menace to the villages at Fort Clark and Fort Berthold. In 1806 Henry mentions the arrival of a party of Crow who had come to the Hidatsa villages to trade (Henry and Thompson, 1897, pp. 398–399), and at a much later period, in 1851, we find mention of the arrival of a group of visiting Chippewa at Like-a-Fishhook Village (Kurz, 1937, pp. 84–85). At an earlier period the Assiniboin seem to have been the most frequent visitors to the area. Verendrye was guided to the Mandan villages in 1738 by members of that tribe who were accustomed to visit the Mandan for purposes of trade. In 1804 a party of Assiniboin accompanied by a number of Cree visited the Mandan and Hidatsa villages (Reid, 1947–48, pp. 71–72), and in April 1805 Lewis and Clark passed recently abandoned camps of both the Hidatsa and Assiniboin in what is now McLean and Dunn Counties (ibid., pp. 213–219, 227–228). In 1809 Henry, in speaking of the extent of the Assiniboin territory, places their southward boundaries on the Missouri and "down that river nearly to the Mandan villages" (Henry and Thompson, 1897, p. 517).

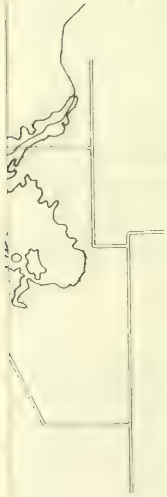
At present little is known regarding the earlier occupants of the area. A few potsherds with cord-roughened exteriors which have been found along this section of the Missouri River appear to belong to some aspect of the widely spread Woodland pattern. Tests at a site north of Williston, in Williams County, N. Dak., yielded sherds which have not been assigned to any previously known culture complex (Metcalf, 1962). Mounds are present on the west side of the Missouri in Mercer County, but nothing is known regarding their age or the cultural affiliations of the builders. Circles of small boulders, commonly known as tipi rings, and some of which may be of moderate antiquity, are common throughout this part of the State. Terrace spurs commonly show traces of campsites buried to an average depth of a foot. Limited test excavations at two such sites have uncovered fireplaces, a few nondiagnostic stone artifacts, and from one a small number of sherds which cannot be assigned to any cultural manifestation yet known.

An excavated site in this area, 32ME59, known as the Grandmothers Lodge site from its connection with a Mandan-Hidatsa myth, has been the subject of a recent report (Woolworth, 1956). A shallow depression there was said by members of these tribes to mark the site of the dwelling of "Grandmother" or "Old Woman Who Never Dies." Excavation of the reputed lodge site was begun by a Missouri Basin Project party late in the 1952 field season, but the sudden and unexpected termination of fieldwork for that year forced the project to be abandoned. The site was then investigated during the two following years by State Historical Society of North Dakota–National Park Service units under the supervision of Alan R. Woolworth. As a result of the complete excavation of the depression, a number of postmolds and a fireplace were found, the arrangement of which suggests the former presence of a semisubterranean, rectangular earthlodge. A fair number of sherds as well as stone and bone artifacts were uncovered which at present cannot be assigned to any cultural manifestation known for the area. Although scattered surface material suggests that the small site extends for some distance on all sides of the depression, no trace of other lodges of the same age were found. The site is a puzzling one in many ways, and if the complex of postholes and fireplace truly represents an earthlodge, as they seem to do, it is undoubtedly the oldest one known at present from the Missouri River area north of the Knife River.

No Paleo-Indian sites are known from this part of North Dakota, but occasional surface finds of fluted points have been made in the area. Much more work is needed on this problem, and an intensive survey of the river bank exposures along the Little Missouri River is a project which might well yield good results to some student in the future.

## SITE DESCRIPTION

Star Village is located on the right (south) side of the Missouri River, and just inside the Fort Berthold Reservation, the boundary line running a few hundred yards to the east of the site. It is in Mercer County, N. Dak., 16 miles north and 3 miles west of the town of Beulah. It may be more closely located as in the NW¼, sec. 3, T. 146 N., R. 88 W. In relation to excavated sites in the area, it lies 12 miles upstream from Rock Village (32ME15), the two sites being on the same side of the river. The site of Like-a-Fishhook Village (32ML2) lies across the river and a short distance below, so close that a particularly deep-voiced camp crier is said to have been able to shout messages



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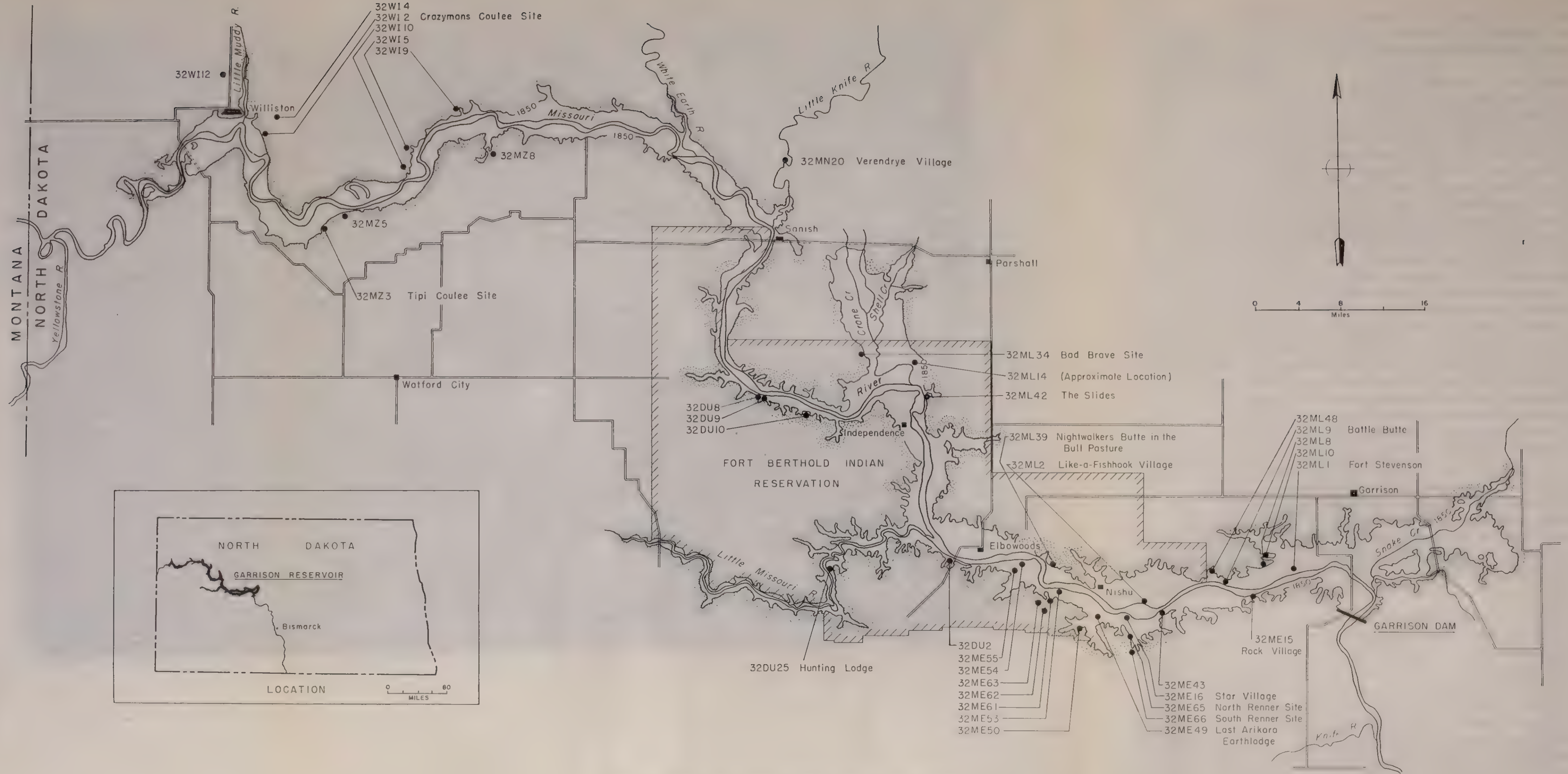
to it from the Arikara village (Will, 1924, p. 326). The Nightwalkers Butte in the Bull Pasture site (32ML39) is across the river and approximately 11 miles upstream, to the northwest (map 2).

The village remains cover an area measuring about 1,050 feet in length northwest–southeast, with a width of about 625 feet northeast–southwest (map 3). The village area is somewhat oval in outline and surrounded by a ditch, the area enclosed being estimated at about 10 acres. It covers the north side of a level to gently sloping terrace which stands some 60 feet above the river level and 30 feet above the flood plain. East of the site this terrace has been removed by stream action in the past, leaving a wide embayment of flood plain which is bounded on the south by a high bluff. To the west a coulee divides the terrace from another of the same height. The terrace extends for some miles west of this coulee, divided at irregular intervals by other drainage ways. The north, west, and east sides of the village terrace pitch sharply downward, those on the north and east meeting the flood plain which slopes gently to the Missouri River 600 yards to the north. A county road runs east–west across the terrace, crowding close to the fortification ditch on the south side of the village site, and beyond it the terrace continues southward for 300 yards to the foot of the hills forming the south side of the valley.

A small stream, known locally as Lousy Creek, meanders along the bottom of the coulee which bounds the site on the west. Local tradition ascribes the origin of the name to an incident which is said to have occurred while the Arikara were building their village there. A small war party attempting to raid the village horse herds was ambushed in the coulee and the following morning the enemy dead were found to be covered with lice. The name may be of very recent origin. As late as 1908 the stream was referred to as Dancing Bear Creek (Stout, 1908), a name under which it is also shown on the Warren map of 1867. What appears to be the same stream is shown under that name on both the Missouri River Commission and Missouri River Survey maps of 1892–1895 and 1891, respectively.

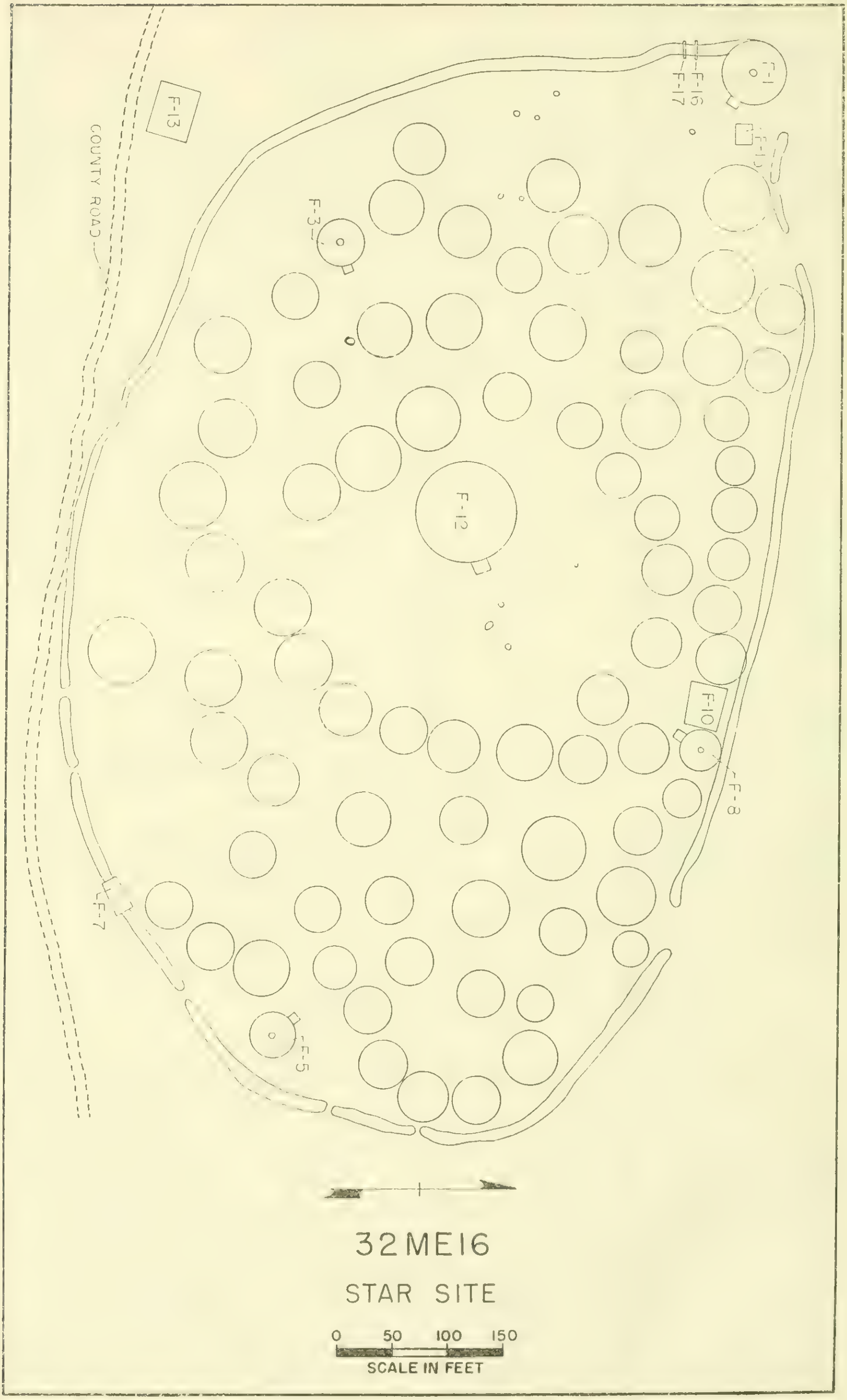
The terrace formed an ideal location for an earthlodge village. It was smooth and well drained, with open, rolling hills and wide, level terraces to south and west which provided abundant pasture for the tribal horse herds, while an unfailing supply of running water was close at hand. The low bottomland to the north, northwest, and east, supported a heavy growth of cottonwood, willow, ash, and elm, furnishing house and palisade posts as well as firewood. Wild fruit is locally present in great quantities today, and there is no reason to suppose that it was less abundant in 1862. The soil of the flood plain, a sandy, alluvial loam, rich and friable, is ideal for hoe cultivation after the brush cover is removed, and some hundreds of acres were immedi-



32WI4
32WI2 Crazymons Coulee Site
32WI10
32WI5
32WI9
32WI12
Little Muddy R.
Williston
1850
Missouri
1850
White Earth R.
Little Knife R.
32MN20 Verendrye Village
32MZ8
32MZ5
32MZ3 Tipi Coulee Site
MONTANA
NORTH DAKOTA
Yellowstone R.
Sanish
Parshall
Crane Cr.
Shell Cr.
0 4 8 16
Miles
32ML34 Bad Brave Site
32ML14 (Approximate Location)
32ML42 The Slides
Watford City
River
32DU8
32DU9
32DU10
Independence
32ML39 Nightwalkers Butte in the Bull Pasture
32ML2 Like-a-Fishhook Village
FORT BERTHOLD INDIAN RESERVATION
32ML48
32ML9 Battle Butte
32ML8
32ML10
32ML1 Fort Stevenson
Garrison
Elbowoods
Little Missouri R.
Nishu
Snake Cr.
1850
GARRISON DAM
32DU2
32ME55
32ME54
32ME63
32ME62
32ME61
32ME53
32ME50
32DU25 Hunting Lodge
32ME43
32ME16 Star Village
32ME65 North Renner Site
32ME66 South Renner Site
32ME49 Last Arikara Earthlodge
32ME15 Rock Village
Knife R.
NORTH DAKOTA
GARRISON RESERVOIR
Bismarck
LOCATION
0 80
MILES

MAP 2.—Sites in the Garrison Reservoir area, North Dakota.

597967 O—63 (Face p. 69)


F-13
COUNTY ROAD
F-17
F-16
F-1
F-15
F-3
F-12
F-10
F-8
F-7
F-5
32ME16
STAR SITE
0 50 100 150
SCALE IN FEET

MAP 3.—The Star Village site (32ME16).

ately available to the north and east. Despite its natural advantages the Arikara occupation of the terrace was destined to be a short and tragic one.

The site has never been under cultivation and stands out plainly on the terrace with house and ditch remains clear and well marked (pl. 14). In 1951 tall prairie grass covered the ditch and the plainly visible ring-mounds which marked the sites of the structures which once formed the village. Depressions marked the positions of caches and borrow pits. The large house rings showed little tendency toward alinement except along the north side of the site, where they were closely spaced and tended to be arranged in rows parallel to the long axis of the site. Somewhat west of the center of the site was an especially large ring-mound which local people insisted marked the site of the ceremonial lodge or "dance lodge" as they referred to it. A large open space had been left in front of this structure, and 16 house rings formed a circle about it and the associated plaza in front with an irregular circle of mounds present outside the first. The remainder of the house rings were placed without order (map 3). The village arrangement, while compact, was less so than at Rock Village (32ME15), an earlier site believed to be attributable to the Hidatsa. It was also somewhat less compact than such earlier sites as the late component of 39ST1 at the mouth of the Cheyenne River, the upper component of the Dodd site (39ST30), or the Phillips Ranch site (39ST14), all of which are tentatively assigned to the Arikara. Many of the house sites showed traces of an irregular depression, sometimes shallow, but occasionally rather deep, at the outside edge of the ring-mound, a trait previously noted only for the Leavenworth site (Strong, 1940, p. 366). These are considered to represent borrow pits from which earth was taken to bank the sides and cover the roofs of the lodges. No occupational debris was present on the surface of the site, and little was found in the excavations. No trace was found of a midden.

A rectangular feature outlined by low earth banks was present outside the ditch, southwest of the village. We were told that this marked the site of a log house occupied by a white trader who was with the Arikara during their sojourn at the site. Excavation did not substantiate this identification.

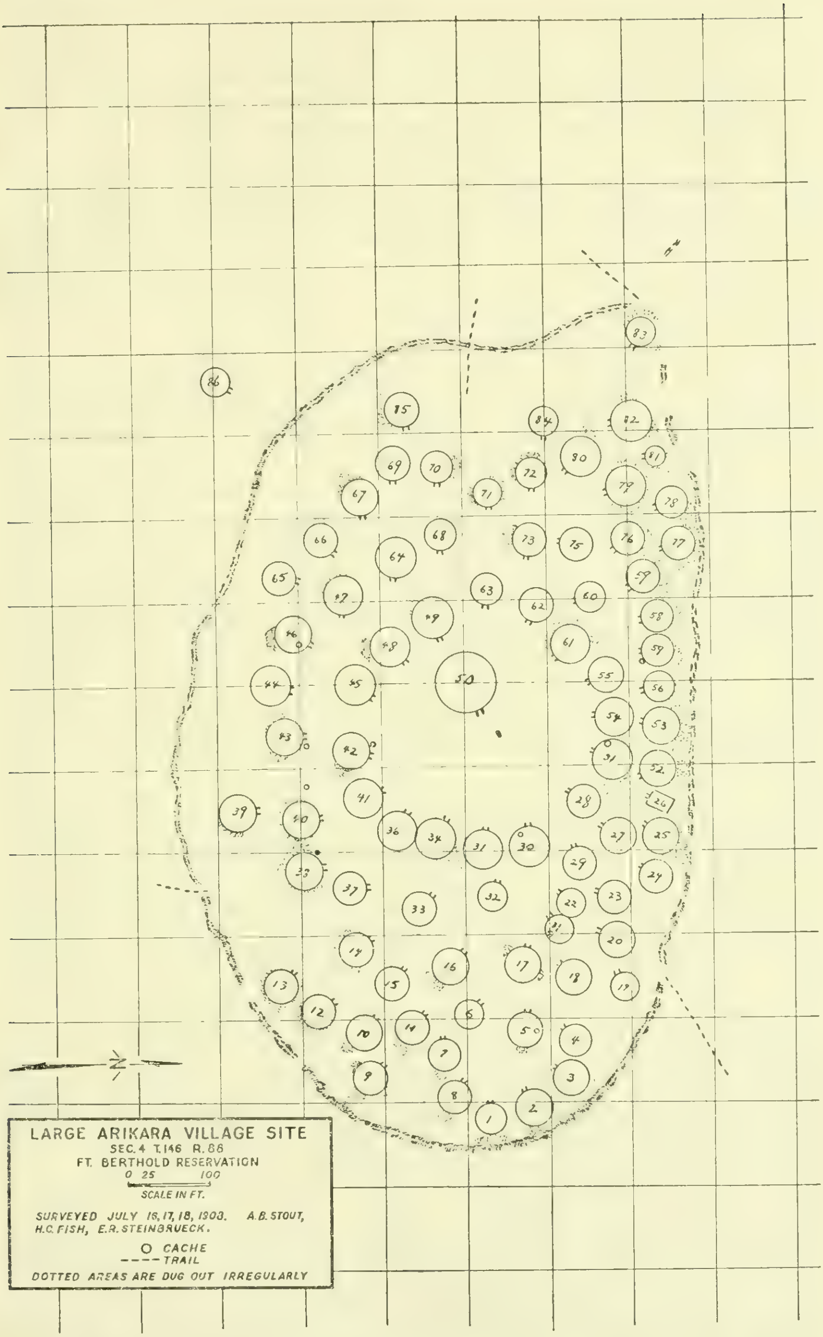
The earliest mention of this site appears to be in a report from Samuel N. Latta, United States Agent, Upper Missouri Agency, to Hon. William P. Dole, Commissioner of Indian Affairs, and dated from Yankton, Dakota Territory, August 27, 1862. Latta writes: "June 5—Arrived at Fort Berthold. . . . Same day [June 5] we passed to the opposite side of the river, where the Rees are building, upon a beautiful slope overlooking the river, their new village, quite convenient to a fine body of timber. They were so harrassed by the

Sioux at their old village [Fort Clark], some eighty miles below, that they were forced to abandon it; also their corn patches which they had tilled for so many years, for new ones, scratched among the weeds and bushes in the bottom of their present place with hoes. Their village is built principally of dirt lodges; here and there a log cabin put up in good style, with fireplaces and chimneys" (Report of the Commissioner of Indian Affairs for the year 1862, p. 194). In the same letter Latta tersely reports the attack on the village by the Dakota. "About the 1st of August last a large party of Sioux attacked the Arikarees in their village, killing a number of them, together with a white man trading at that place. They were repulsed with a loss of some 30 killed."

In the same year Lewis H. Morgan visited the upper Missouri River, stopping briefly at the recently abandoned Fort Clark village, at Like-a-Fishhook Village, Fort Berthold, and visiting the new village which the Arikara were then building. He places the latter "two miles above the Minnitaree [Hidatsa] Village, and on the opposite or southwest side of the river . . .". Regarding his brief visit to the Arikara here he says; "I found them actively engaged in the construction of a new village. It is back on the bluff, about half a mile from the river" (Morgan, 1871, p. 30).

It is of interest to note that while Latta mentions the presence of log cabins in this village at the time of his visit, Morgan makes no mention of them, although at the Fort Clark village he saw "several rectangular houses constructed of hewn logs" (ibid., p. 42). The Missouri Basin Project party recognized nothing at 32ME16 in 1951 which in any way suggested the former presence of log cabins.

In 1908 A. B. Stout mapped a number of village sites for the State Historical Society of North Dakota, among them one which he labeled "The Large Arikara Village Site" (map 4) and, in addition, the smaller village site to the west of this. The map of the larger site is, without question, a map of 32ME16. This map shows 84 lodge rings and one rectangular earth-bank enclosure within the encircling ditch and one outside it. In addition to measuring the diameter of each lodge ring, Stout numbered them and obtained a partial list of the owners' names, 21 in all. That he was able to obtain such a list is not at all surprising since the village had been abandoned only 46 years previously and his informant had lived there. Stout's field notes, in the files of the State Historical Society of North Dakota, describe the adjacent terrain as characterized by gentle slopes and level areas, the latter cut by a stream bed. A gently sloping valley is mentioned as present to the east, and a watercourse to the west. He mentions the bluffs to the south and says that in them was a spring used by the Indians. The lodge rings are described as distinct, with the position of the doorways "unmistakably evident," the rings from 3 to 18 inches


N
LARGE ARIKARA VILLAGE SITE
SEC. 4 T. 146 R. 86
FT. BERTHOLD RESERVATION
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SURVEYED JULY 16, 17, 18, 1908. A. B. STOUT, H. C. FISH, E. R. STEINBRUECK.
O CACHE
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DOTTED AREAS ARE DUG OUT IRREGULARLY

MAP 4.—Map of "The Large Arikara Village Site" made by A. B. Stout in 1908. (Courtesy of the State Historical Society of North Dakota.)

in height, and the area within the rings "about level with the general level—not dug down in the least." He was shown where the Grandfather Rock had stood, in front of the ceremonial lodge, and indicated the position on his map. He noted the depressions encircling many lodge rings, and indicated the plainest of them by dotted areas on his map. Regarding these features he says: "The dirt was removed irregularly to a depth of from six inches to two feet . . . evidently for building purposes. It does not appear however that enough dirt was thus removed to build all the huts. Many huts have no dug areas nearby, in others it is close around wall. In many cases it merges into ditch from inner side" (Stout, 1908).

In the course of his interviews Stout was told by one informant, Yellow Wolf, that the nearby western village was much smaller than 32ME16, and that it had no ceremonial lodge. Yellow Knife is said to have been chief of the smaller village, with Eagle-On-Hill as aide or subchief. Star "was chief of all the Arikara . . . [and] lived in the large village to the east, across Dancing Bear creek . . . under him were White Shield and Tall Bull" (ibid., 1908). The gardens and cemetery were said to have been held in common by the two villages, the cemetery being located across the small stream, northwest of 32ME16. This spot was pointed out to the 1951 party as the site of the cemetery and, although no excavations were made here, fragments of human skeletal material were picked up from the surface of the plowed field at this point. Evidently the burials were either very shallow or scaffold burials have been made here.

O. G. Libby, in a paper on Indian village patterns in North Dakota, (1908, p. 506), described 32ME16, citing Stout's notes as authority for his statements. Libby says that the village was built in May 1860 and gives the names of the leaders as Wolf Chief and Yellow Knife, with Wolf Necklace as assistant. "In August of the same year eight bands of Sioux came to trade at the store in the large village, . . . and being dissatisfied at the prices paid by the white man . . . killed him. The Arikara at once attacked the Sioux to revenge his death, since he had married into their tribe. Only a few were armed with guns at this time, and they suffered severely, sixteen of their number being killed. On the evening of the battle, both villages hastily fortified themselves by a ditch, and the next day they all crossed the river to the Fort Berthold Village."

Today the older Arikara remember tales of incidents which occurred at this village, either before or during the fight, tales which they were told by their parents or grandparents. In a general way the stories agree, although they often vary greatly in detail. In 1951 it was found impossible to obtain the native name of the village, and only one or two people hazarded a guess that the name of the chief was Star. The relationship, if any, between this chief and Son of Star (1830–1881), one of the two Arikara chiefs formerly memorialized by a monument north of the cemetery at Like-a-Fishhook Village, is unknown. They may actually have been the same person. The tradition that Star was chief there is the basis of our name for the site.

In August 1912 nine survivors of the group of Arikara who had served as scouts for the Army, met with O. G. Libby, of the State Historical Society of North Dakota, and their accounts of the Black Hills Expedition and of the 1876 campaign were later published by that Society. Following the narratives of the scouts is a section devoted to short biographies of the Indians interviewed. The first part of this paper is a valuable historical document; the worth of the second part is difficult to evaluate since it is often impossible to determine whether the identification of places is that of the Indian or that of the interviewer. The site considered here is mentioned a number of times in the biographies. In the account of Strikes Two it is stated that the Arikara left Fort Clark in the fall of 1861 and wintered in two villages above the present settlement of Nishu. "Before the ice broke in the spring, all the Arikara moved down the river and built two villages across from Fort Berthold. In the fall of the same year they crossed the river and joined the Fort Berthold Village, after they had been attacked by the Dakotas, who camped near their villages to trade for corn" (Libby, 1920, p. 187). This is further dated as the year of the great Dakota attack on Fort Berthold, an event which took place December 24, 1862. In the biography of Red Star, another of the scouts, it is said that his mother "was killed with her five-year-old daughter by the Dakotas at the Arikara village opposite Fort Berthold" (ibid., p. 195). The statement is also made that Running Wolf, another of the scouts, "just remembers the Dakota attack upon the two Arikara Villages opposite Fort Berthold" (ibid., p. 204).

After Libby the next published mention of the site seems to be that of Will, who says ". . . just above the river elevator at Ree, is the first of the two Arikara sites, built by that tribe and occupied for about a year before they crossed the river and built near their allies at Old Fort Berthold. These sites are separated by less than a mile, show very short occupancy, and are exactly opposite the old Fort Berthold site" (Will, 1924, p. 326).

Only one other reference to the site has been found. In a list of North Dakota sites it is stated that "There are two Arikara villages on the south side of the river, across the river and about one mile upstream from the Fort Berthold site. One of these sites is known as the Yellow Knife site. The sites were occupied by the Arikara some time after 1850" (Will and Hecker, 1944, p. 116).

## METHOD AND EXTENT OF EXCAVATION

Owing to the late date at which the field party arrived at the site, and the small number of men in the crew, only a limited amount of excavation was possible at Star Village. After examining the site it was decided that in addition to mapping it, an attempt would be made to excavate a house floor in each quarter of the village and, additionally, the site of the large ceremonial structure. Because of the shallowness of the fill above the floors these operations required less time than was expected. Feature 10 was then excavated (Map 3), and the one feature outside the encircling ditch (Feature 13) was explored in order to determine if excavation would confirm the local belief that it was the site of a former log cabin. This it did not appear to be, nor did it fit the pattern found at Feature 10. Therefore another small earth-wall enclosure, Feature 15, was excavated. In addition to these excavations a large area was uncovered adjacent to a gap in the ditch in order to determine if any trace of a gate was present at that point, and two exploratory trenches were cut across the fortification ditch in the northwest part of the site before the approach of winter brought the 1951 field season to a close.

Work began at the site on August 23 with a crew of eight laborers. On August 29 two of them left to return to school, and a week later four more left for the same reason. Two local men were then engaged, and supervisory personnel became laborers upon occasion. Work was greatly hampered by inclement weather during the entire period of operations there, at first by heavy rains and later by high winds and low temperatures.

In excavating the house floors, operations began at the center of the area enclosed within the ring-mound. The soil was first removed to a depth of 5 or 6 inches by vertical shovel-cuts. As soon as the center was cleared and the fireplace located, especial care was taken to remain well above the level of that feature. After the first layer of fill was removed to a point beyond the crest of the ring-mound, the loose earth was shoveled out. The floor of the excavation was then scraped deeper with trowels in an effort to find the floor of the structure, an effort which was never entirely successful at this site since the floors had never been subjected to constant trampling and, apparently, not prepared by beating. By using fireplace level at the center of the lodge and with the aid of occasional finds of bits of decayed willow rods and grass which had originally formed the first layer of roof covering, it was found possible to hold to the floor level with accuracy. Occasionally there was a slight admixture of finely powdered charcoal at this level which, although never marked, formed a slightly darker line which helped hold the floor level true. The floor of the ceremonial lodge, Feature 12, proved particularly hard to follow. No fireplace was present, and the charcoal-mixed level, never pronounced in any house, was completely lacking there. As a result the floor was scraped down to what appeared to be clean, undisturbed soil where the postmolds were found. It is possible that this feature was excavated slightly below the true floor level.

Each excavation unit within the site was designated a feature and assigned a number, and the same procedure was followed with all finds which were considered noteworthy. Thus, house floors with their associated posthole patterns were considered features, as were fireplaces, storage or other pits, exploratory cuts across the ditch, and the excavation which uncovered the entrance gap left in the surrounding ditch. In the following pages each of these will be described under its feature number.

## HOUSES

*Feature 1* (*fig. 6; pl. 15, a*).—The field season was almost ended and the excavation of the ceremonial lodge was well under way before Stout's map and notes were discovered. It occasioned some surprise when it was learned that Feature 1, the first house floor to be uncovered at the site was, by the testimony of Stout's informant, that of the first lodge to be built at the site and further that it had been owned by "Chief, the only Mandan in the village." It was located in the extreme northwest part of the site with the defensive ditch approaching it closely on the north and northwest. Before excavation it showed as a low but distinct ring-mound or circular earth-bank enclosure and was well covered with a heavy growth of rather tall grass. The fireplace was located at once, and the earth was removed to this depth as far as the inner side of the mound. The floor was not well marked, but close examination showed a thin line of soil darkened by the presence of a small amount of fine charcoal particles and resting on completely sterile earth. This level was accepted as the floor, and the edges of the excavation were carried outward until traces of the leaner butts were found. The fill varied in depth from a minimum of 7 inches at the center to a maximum of 10 inches at the outer edge.

The excavation revealed the floor plan of a circular structure 33 feet in diameter, with a central fireplace, four centrally located support posts, an outer ring of 11 posts and an entrance portico. The four central posts stood at a radius of approximately 7 feet from the center of the fireplace and formed the corners of a square measuring 10 feet on a side. Two extra postmolds were present, one behind each front center post and in line with that member and the fireplace. Evidences of extra posts are not uncommon in house remains in the Plains area and have been referred to as braces, on the supposition that they were added in the old age of the structure to support a weak foundation post or a sagging roof member. Such can hardly have

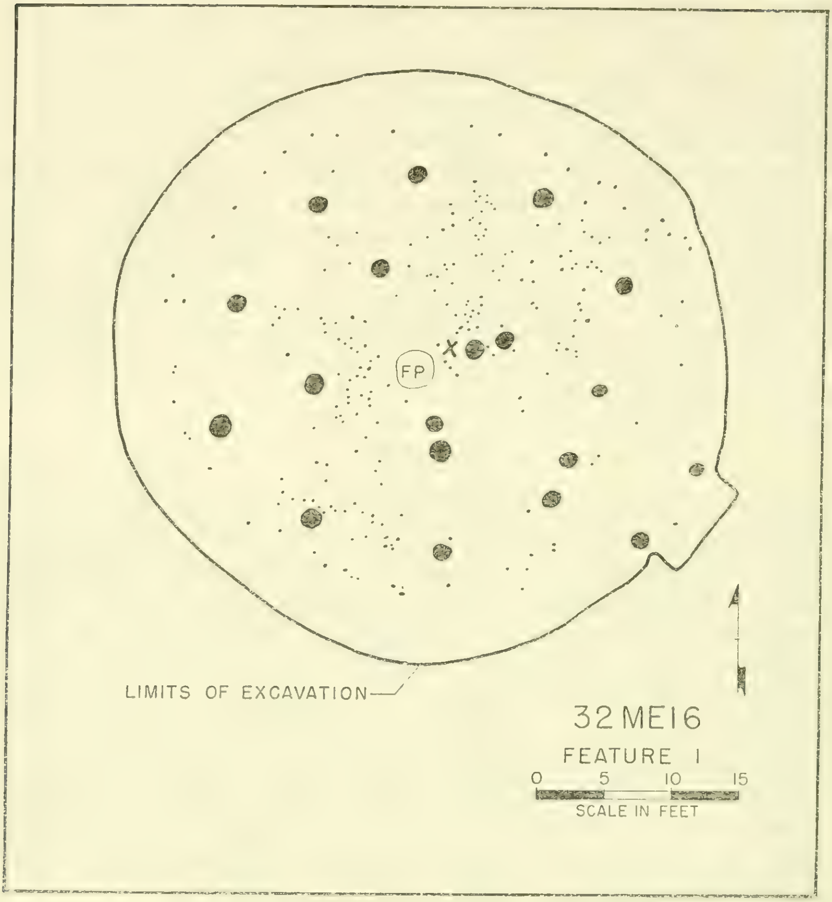

FIGURE 6.—Floor plan of Feature 1, Star Village site.

been the purpose here, for this was, presumably, a new house when the village was abandoned. These two molds may have held posts which supported a horizontal bar from which a robe or blanket was hung to serve as a screen and break such drafts as entered through the doorway.

The molds of the 11 posts forming the outer circle stood at an average radius of 13.75 feet from the center of the fireplace and well beyond the crest of the ring-mound. Posts in this circle carried the stringers against which the upper end of the leaners rested, as well as carrying one end of the rafters. These posts were unevenly spaced at intervals of from 3 to 10 feet apart. Forming a somewhat irregular circle at an average distance of about 3 feet beyond the outer circle of postmolds were the butts of many small poles and slabs, apparently all that remained to mark the position of the leaners which formed the inner part of the house wall.

Many small, shallow holes from 1 to 2 inches in diameter were found in the floor. These were often in groups but in no case did they form a pattern. Most of them contained bits of decayed wood and, in some cases, the butts of small poles or rods, the purpose of which is unknown. Conceivably they may represent the position of beds, of hangers for meat, clothing, weapons, or tools, or perhaps in some cases of partitions erected when horses were stabled within the lodge.

The fireplace, a simple, unlined depression in the floor, measured from 30 to 33 inches in diameter at the top. It was 5 inches in depth, and the flat bottom was 20 inches across. The concave sides were reddened by the action of fire, but at no point did the color change exceed a half-inch in thickness. White ash made up less than half the contents, the bulk of the fill being of earth.

The entrance portico extended to the southeast. It was marked by one pair of oppositely placed postholes at the front, these being in line with a pair in the outer ring of foundation posts of the house. A width of 7.5 feet at the doorway is indicated, with an average length of about the same.

No trace was found of a firescreen of the type recorded by Wilson for the Hidatsa (1934, p. 386), by Maximilian for the Mandan (1906, pp. 271–272), or as found by Hartle during the excavation of the Rock Village (32ME15) and the Nightwalkers Butte in the Bull Pasture (32ML39) sites. Neither was there any indication that the leaners of the entranceway had been set in trenches. No caches were present in the floor.

Little cultural debris came from the site of this structure. It is of interest, however, that a greater percentage of the objects found there are of pottery or stone than was the case at the other structural remains excavated at the site. At the same time it should be noted that trade objects were present in approximately the same numbers as at the other house floors uncovered. The notes give little indication as to whether the objects of native origin came from the fill or from the floor level. I suspect that the sherds and stone objects found here were from the fill and probably were present in the earth used to cover the roof and sides of the structure and represent an earlier use of the site by some group or groups who preceded the Arikara. Fifty-three fragments of animal bones were recovered, few of which were identifiable. A single kernel of charred corn was found. Probably the most interesting trade object from the entire site was found there—a small dagger which had been thrust down into one of the central postholes. A boulder 12 to 18 inches in diameter was in the fill about 6 feet southwest of the fireplace. This seems to have been above the floor level and showed no sign of having served as an anvil.

*Feature 3* (*fig. 7; pl. 15, b*).—The second floor to be uncovered at the site was in the southwest part of the village, and is identifiable as that marked "67" on the Stout map and one for which that investigator failed to obtain the owner's name. Like the first, its presence was indicated by a low but distinct ring-mound which, in this case, measured 46 feet in diameter. The fill was somewhat deeper than at Feature 1, averaging slightly over 8 inches in depth. The floor plan was similar to that of the first excavated; circular, with central fireplace, a four-post central foundation surrounded by an outer row of support posts and with a vestibulelike entranceway.

The butts of four central foundation posts were found at a radius of 7.5 to 8.0 feet from the fireplace and formed the corners of a square measuring 10 feet between the southwest and southeast posts and 11.25 feet on the other three sides. Beyond these was a circle of 17 irregularly spaced molds indicating the positions of the secondary posts which stood at a radius of from 17 to 19 feet from the center of the fireplace. This floor plan indicates a lodge which is somewhat out of pattern, and I am inclined to believe that molds of two closely planted posts in the outer circle at the back of the lodge indicate braces or perhaps some such feature as a shrine. There is a wide gap between the first and second molds to the left as one enters the lodge, and a mold may have been missed by the excavators. The posts forming the outer circle stood at distances of from 17 to slightly over 19 feet from the center of the fireplace, those on the northeast being closer than those on the southwest side. Traces of leaner butts were found only on the north and northwest, where they stood at a distance of from 15 to 18 inches from the outer post ring and slightly inside the highest point of the ring-mound. This gives the lodge an inside diameter of approximately 39 feet.

Post butts or fragments of decayed wood were present in all but the northeast center posthole, which may mean that this post had been pulled. All of these butts indicated surprisingly small posts for a structure with a diameter of nearly 40 feet. As was the case at Feature 1, many small holes were present in the floor. A large group of them were present behind the fireplace in the area enclosed by the central foundation posts. Many larger molds were also present, some of them as large as those for the foundation posts.

The centrally located fireplace (Feature 4) was a shallow basin, circular in outline, 26 inches in diameter and 5 inches in depth. The sides and bottom were brick-red from burning, and it was filled to floor level with soft white ash in which were three fragments of glass, a gun-flint, and a small brass ring.

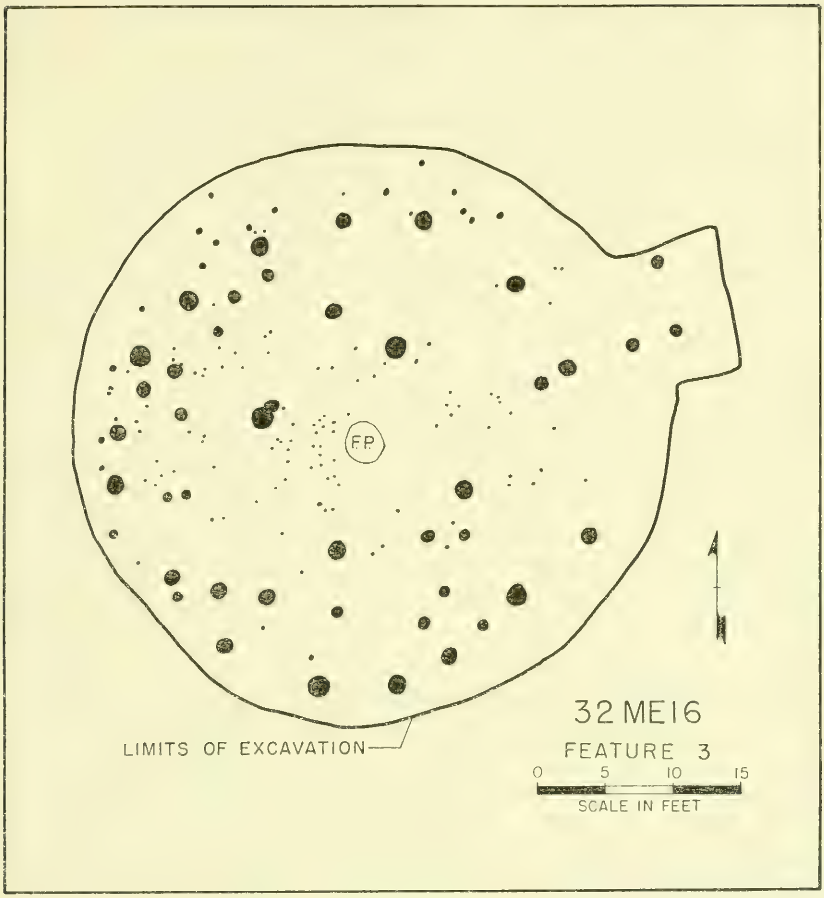

Figure 7.—Floor plan of Feature 3, Star Village site.

The entranceway was about 10 feet in length with the long axis northeast–southwest. The inner end was apparently framed by two posts of the outer support ring, and two posts had framed the opening at the outer (northeast) end. An extra post was present in the south wall line. At the outer end the entrance was 5 feet in width, and it measured 2 feet more between posts at the inner end.

Feature 3 yielded but few artifacts and, except for the objects found in the fireplace, most of them came from the outer edge of the floor. A small granite boulder about a foot in diameter was present in the fill some 6 feet north of the fireplace and at least 5 inches above the floor. This was somewhat battered as if from use as an anvil.

*Feature 5* (*fig. 8*).—The ring-mound marking this house site was located about the middle of the outer line of rings on the east side of the site. It is No. 9 on Stout's map and of it he says: "This was White

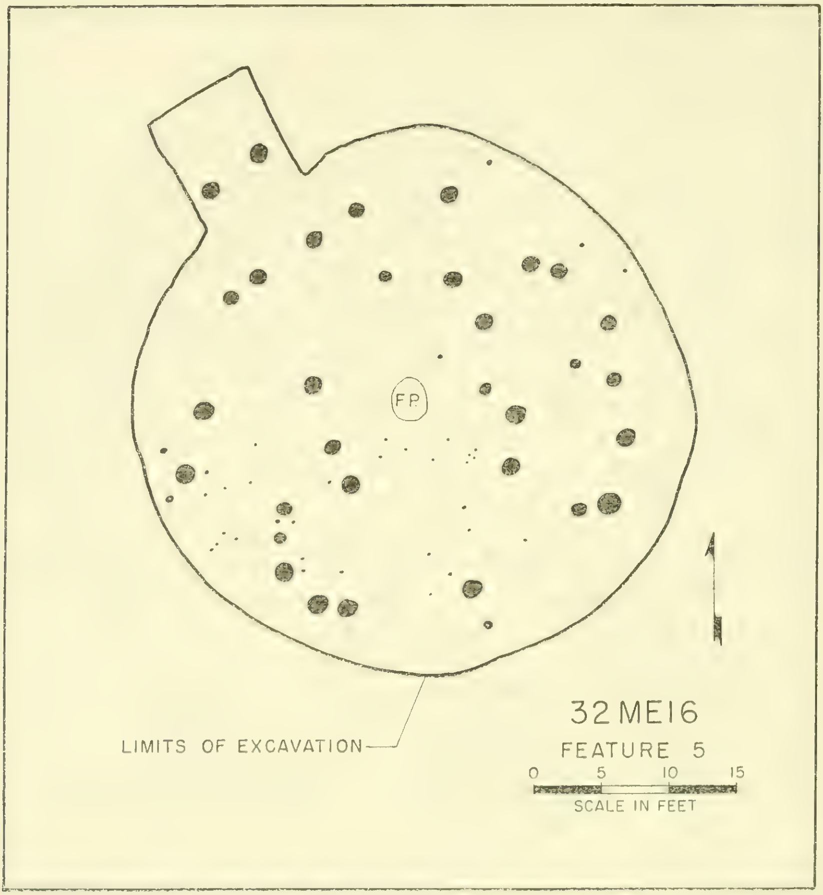

FIGURE 8.—Floor plan of Feature 5, Star Village site.

man's store. Here is where battle started. Bull Neck [informant] could not give white trader's name."

The well-marked ring-mound measured 38 feet in diameter from crest to crest. Removal of the fill, which nowhere exceeded 10 inches in depth, revealed the usual pattern of a central fireplace and holes for four central foundation posts surrounded by a secondary post ring. The circular fireplace was smaller than usual, measuring just under 2 feet in diameter and 5 inches in depth. The sides were concave, and the flat bottom was 10 inches across. The four center posts had stood at a radius of from 7 to 8 feet from the center of the fireplace, forming the corners of a markedly rectangular area which measured 13 by 7.5 feet, with the long axis northeast–southwest.

Sixteen irregularly spaced molds at a radius of from 14 to 17.5 feet from the center of the hearth, and forming a circle about 31 feet in diameter, indicated the position of the outer posts. This circle is not at all satisfactory, and it is possible that some molds were not discovered and that the lodge had 15 posts in the outer ring with an additional pair framing the inner end of the entrance.

The entrance portico was indicated by a single pair of postholes at the outer end. Two posts of the outer ring of foundation posts may have served to frame the inner end of the entranceway, as seems to have been the case with the two structures previously excavated. The two outer molds indicate a northwest opening entrance 4.5 feet in width and 7.0 feet in length, with the long axis northwest-southeast at a right angle to that of the central area about the hearth. Like the others it opened toward the clear space or plaza in the center of the site. Evidence of wall leaners was very scanty, but the few found stood at from 30 to 38 inches beyond the secondary circle of postmolds, which gives a diameter of about 37 feet for the house.

Supernumerary postmolds were present in the floor as were the small molds left by rods 1 to 2 inches in diameter, but neither was as common here as at Features 1 and 3. Two of the larger molds which were placed in such fashion as to suggest a six-post central foundation may have served as crane posts to support a pole above the fire.

Two pieces of nondescript worked stone, four iron nails, a broken iron knife, a fragment of glass, and a trade bead were the only artifacts recovered.

*Feature 8* (*fig. 9; pl. 16, a*).—The fourth house floor to be excavated was located in the outer row of house rings, in the northeast part of the site. The ring-mound which indicated its presence was somewhat higher than was the case with the three previously excavated and the floor line was easier to follow, owing to the quantity of badly decayed bark and wood which lay upon it. This was particularly true of the east half. Some sections of timbers found there were of good length and were, presumably, the remains of rafters.

The four postmolds of the central foundation posts stood at the corners of a rectangular area which measured between 10 and 11 feet across the short axis, southwest-northeast, parallel with the long axis of the entrance portico. The central area measured 12.5 feet in width across the front and just under 15 feet across the back, the northeast centerpost being far out of line. The fireplace, which was in the center of the floor, was not in the center of the area delimited by the centerposts, being behind and to one side of that point.

Twelve postmolds, irregularly spaced, at distances of from 15 to 17.6 feet, but with most of them occurring rather uniformly at between

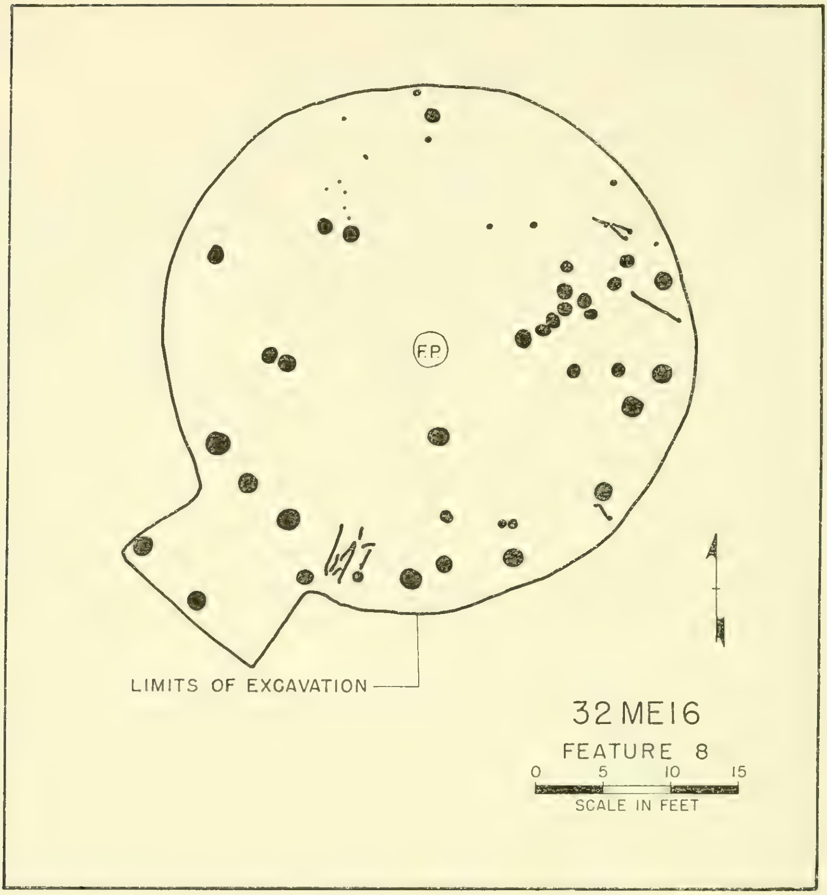

Figure 9.—Floor plan of Feature 8, Star Village site.

16.25 and 17.5 feet, indicated the positions of the posts forming the secondary circle. Two of them seem to have framed the inner end of the entranceway. Four of the twelve stood in the northwest half of the circle, eight in the opposite half, giving rise to a suspicion that not all the molds on the northwest side were discovered. The great gap of slightly over 20 feet between posts at the back of the lodge is also suspicious. I suspect that the structure actually had 16 posts in the outer circle.

A number of extra molds were present in the floor, but those left by small willow wands were fewer and large molds more common than usual. A group of the larger molds were present behind the northeast centerpost position, five of them forming a line between that member and an outer foundation post. They may represent one end of a horse corral within the lodge. A mold near the southwest centerpost may have held a crane post or a wooden mortar.

Shallow molds beyond the outer circle indicated the location of the leaners. These stood at a distance of from only 8 to 14 inches from the outer post ring, which would indicate walls much more vertical than was the case at the other house remains excavated, provided that the outer foundation posts were of the same height. These molds indicate an inside diameter of about 36 feet for this house.

The fireplace was a rather large, but shallow, basin-shaped pit. It measured 30 inches in diameter and 4 inches in depth. White ash filled it to the floor level.

The entranceway, with its long axis southwest–northeast, opened toward the center of the village and was framed by a pair of posts at each end, the inner pair, as usual, forming part of the outer circle of support posts. It was from 4.0 to 4.5 feet in width and between 8.0 and 9.0 feet in length. Artifacts were rather more plentiful at Feature 8 than at the other houses excavated. A tincup was found on the floor southeast of the fireplace. North of the fireplace was the bottom of a green glass pocket flask, and other fragments of glass were scattered about the floor. Three sheet-iron "jingles" lay on the floor 8 feet southeast of the fireplace. Other objects from this excavation consist of sherds of Staffordshire earthenware, several iron objects, and a few pieces of worked stone.

*Feature 12* (*fig. 10; pl. 16, b*).—Located at the west side of the open space in the center of the site was the largest of the earthen ringmounds. This marked the site of what was, reputedly, the ceremonial lodge. Since it has been described and discussed in detail in another place (Metcalf, 1962), only a summary description will be given here.

It was circular in outline and between 75 to 77 feet in diameter. Molds of the four posts forming the central foundation formed the corners of an area about 20 feet square, with the rear pair about 2 feet further apart than those in front. Twenty postmolds formed an irregular circle about these at a radius of from 25 to 38 feet from the center of the central area, those in the front of the lodge being the closest. At a distance of from 5 to 11 feet beyond these was a shallow, narrow trench, 6 to 8 inches in width and the same in depth, which yielded many bits of decayed wood, presumably the butts of the leaners. The entranceway, between 6 and 7 feet in width and 12 feet in length, was on the east side of the lodge and oriented east-west, opening upon the open space in the center of the village. No

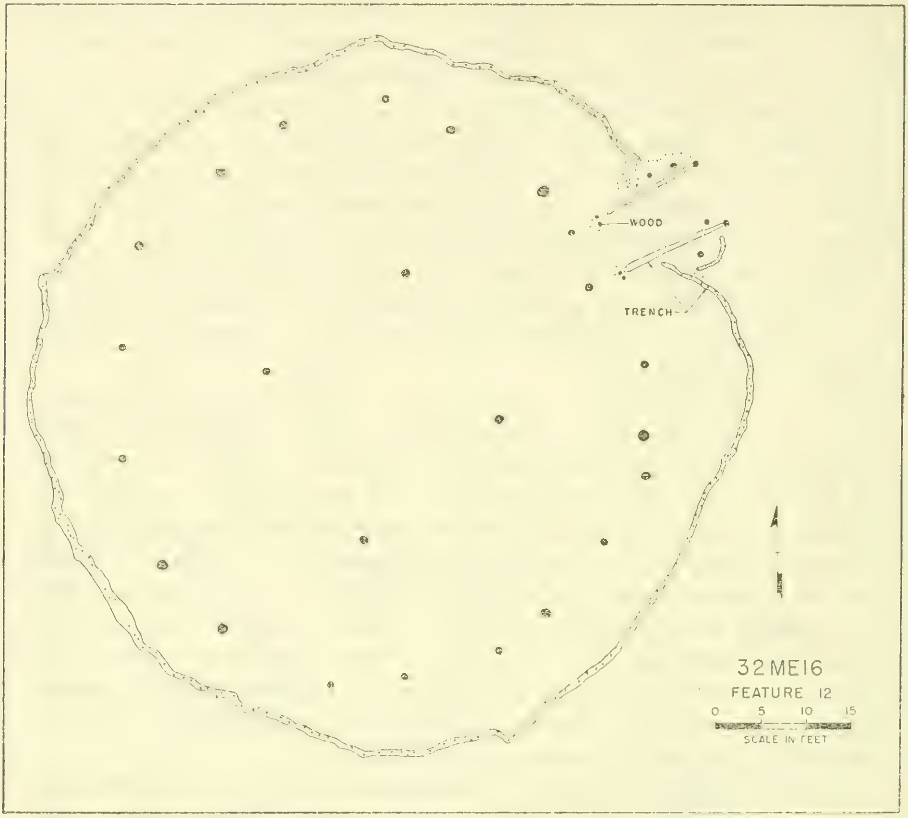

Figure 10.—Floor plan of Feature 12, Star Village site.

trace of an altar or of a fireplace was found, suggesting that the structure was unfinished when the site was abandoned.

## DISCUSSION OF HOUSE REMAINS

Although the five structures excavated at Star Village were all of the same basic pattern, there was great individual variation in details. There seems to be no pattern for such details as the relative size of the central area outlined by the four central support posts, in the shape of this area, or in its orientation with the long axis of the entranceway. All houses were round, with a four-post central foundation, an outer ring of secondary foundation posts, and a short, vestibulelike entranceway. The fireplaces were only approximately centered within the central area. There was a slight tendency for the four center posts to be located approximately midway between the central point of the floor and the outer ring.

There was a great variation in the number of posts present in the outer ring and in their distances from each other. Although part of the relative discrepancy might be explained by assuming that not all post positions were found, this explanation does not entirely explain the situation.

There is also a marked variation in the distance at which the butts of the leaners stood from the posts of the outer ring. Four houses, Features 1, 3, 5, and 8, varied but a few feet in the diameter of the outer post ring, but the leaner butts, or traces of them, were found at widely varying distances outside the ring, this distance bearing no relation to the diameter of the house.

There were certain advantages in placing the butts of the leaners well away from the secondary posts. The longer slope would make it easier to cover the sides with earth; access to the top of the lodge would be rendered easier and a greater floor space, particularly storage space, would result from such practice. On the other hand, much more earth would be required to cover such leaners, and the resulting increase in weight would call for heavier leaners, which in turn would require heavier timbers at the tops of the outer support posts where the leaners rested. It seems most probable that the distance at which the butts of the leaners stood from the secondary posts reflects differences in the height of the outer posts, since this would allow the butts to be placed at some distance from the outer foundation ring and still rise steeply if the top stood at a good height from the ground.

In 1932 William Duncan Strong carried on excavations at the Leavenworth site in South Dakota, which was occupied by the Arikara during the first quarter of the 19th century. The one published floor plan of a house from this site shows a centrally located fireplace, four central support posts, and 15 posts in the outer ring (Strong, 1940, p. 367). Although the hearth is rather better centered than was usual at Star Village, the same irregularity in the distances at which the central posts are placed from the hearth is present. The center posts, like those at Star Village, stand approximately midway between the hearth and the outer ring of posts. Leaner butts stood at an even greater distance from the outer post ring than did those at Star Village.

The greatest difference is found in the entrance details at the two sites. At Star Village the entrances seem to have been framed by one pair of posts at the outer end of the vestibule. Presumably rafters extended from these to one pair of posts in the outer support ring of the house. In general the length and width of the vestibule was approximately equal. This seems to have been the Mandan and Hidatsa practice and fits well with the remains found at Rock Village (32ME15) and at the Nightwalkers Butte in the Bull Pasture site (32ML39). At the Leavenworth site the length of the entrance was nearly three times its width and each side was outlined by a row of postholes, a type of vestibule entrance of some antiquity in the central Plains, where it reaches back to Upper Republican times.

The use of leaners to support the earthen sides of the lodge seems to be a rather late trait on the Plains. The Pawnee, Omaha, Otoe, Arikara, Mandan, and Hidatsa all used the leaner in the historic period. For the immediately preceding period there is little evidence. Lower Loup houses in general show an outer circle of 16 posts and although leaner remains have not been recognized, they were presumably present.

In 1951 Donald J. Lehmer excavated 10 houses at the Phillips Ranch site (39ST14), near Pierre, S. Dak., for the Missouri Basin Project of the River Basin Surveys. The site is undocumented but yielded trade material and horse remains (Lehmer, 1954). All houses uncovered here were circular in outline, with central fireplaces, vestibule type entrances, and with four single or multiple primary roof supports set to form a rectangle about the fireplace. In general these center posts were set at, or close to, an even distance from the fireplace and show a strong tendency to be halfway between the center of the house and the wall. Entrances are unlike those at Star Village and resemble those at the Leavenworth site in being of the long vestibule type outlined with closely spaced postholes. The greatest difference between the structures here and the later ones lies in the outer ring of posts, which at the Phillips Ranch site were closely set at fairly regular intervals. The small, closely spaced posts were generally interspersed with heavier posts which might or might not be regularly spaced. Since all these wall members were set vertically, it would appear that leaners were not used here. The suggestion that leaners were not present may be offset by evidence gathered by Lehmer in 1950 at the nearby Dodd (39ST30) site, where he also uncovered the floors of 10 round structures. These he considers to be earlier than those at the Phillips Ranch site since trade goods were less abundant and horse remains were lacking. At one house, Feature 35, charred material found lying on the floor led Lehmer to postulate a wall of four separate layers, the inner one of which was composed of a "series of overlapping split wood 'bats' roughly 2 inches thick which apparently leaned against the house framework" (ibid., pp. 12–13). It would seem at least as probable that the charred material found here might have represented roofing rather than the remains of the wall of the house. It is possible that at the Dodd and Phillips Ranch sites leaners were used with their butts resting on the ground surface outside the house pit, although Lehmer in describing the charred remains at Feature 35 did not believe this to have been the case. At Rock Village (32ME15) the position of leaner butts was indicated, in some instances in which the house was destroyed by fire, by the presence of small fire-reddened areas where the butts had rested. I have noted the same fire-reddened areas left by burned leaner butts around excavated Pawnee lodges in Nebraska. Nothing of this sort is mentioned as occurring at the Dodd-Phillips Ranch sites and the condition was, presumably, not found.

Study of the published floor plans of the houses excavated at the Dodd and Phillips Ranch sites show other similarities as well as differences when compared with the floor plans of houses from Star Village. Floor plans of Dodd site (39ST30) houses suggest that some more closely resemble those from the Star Village than do others at the site or than those found at the Phillips Ranch (39ST14). This applies particularly to Dodd site Feature 1 (Lehmer, 1954, p. 8), Feature 7 (ibid., p. 9), and Feature 73 (ibid., p. 14). In two of the three, the center posts do not form a good square, and the outer post-ring much more resembles that of the later structures than do the others from the two Oahe Reservoir sites. The absence of many closely set posts in the outer ring suggests that leaners were used here. The floor plans of Features 8 (ibid., p. 10), 11 (p. 11), and 106 (p. 15) suggest that they also used wall leaners entirely or in part. Entrances of Features 7 and 11 are of the short four-post type found at 32ME16, while that of Feature 73 (p. 14) tends in that direction.

At the Phillips Ranch site the presumed ceremonial lodge opened to the northeast, as did that found at the Dodd site and at Star Village. At Like-a-Fishhook Village (Metcalf, 1962), the ceremonial structure opened to the east. At the Star Village site all or most of the surrounding houses opened toward the ceremonial structure or the plaza in front of it, a trait not present at either of the Oahe Reservoir sites where the majority of the houses opened to the northeast. At the Phillips Ranch site (39ST14) the presumed ceremonial lodge stood at the approximate center of the site, as did that at Star Village.

One of the greatest differences between the round structures uncovered at the Dodd and Phillips Ranch sites and those uncovered at Star Village lies in the fact that at the two South Dakota sites the floors were definitely in dug pits, while at the North Dakota site the floor was on or just below ground level. At the Phillips Ranch site the floors were found at an average depth of 2.25 feet below surface, the range being from 1.8 to 2.9 feet. Those at the Dodd site measured about the same, an average of 2.11 feet with a range of from 1.5 to 2.8 feet. No measurements are available for the Leavenworth site. At Star Village no floor was more than a foot below the surface at the center, and within the ring-mound the surface was somewhat higher than outside it so that floors at, or but little below, surface level are indicated. It must be noted, however, that at the Dodd and Phillips Ranch sites the pit walls are described as made up of "unfaced refuse and native soil." Unfortunately, one does not know whether this indicates a mixture or whether the pit was dug through a layer of refuse into native soil. It may well be that at these two sites the depth of the pit is made up largely of an accumulation of refuse which grew up about the house walls and over the entire village area during the occupation of the site. Certainly this is the impression one gets at the 39ST1 site, which is probably of approximately the same age as the Dodd and Phillips Ranch sites.

Vertically framed walls with no traces of leaners and with walls outlined by many closely set posts in a pit, which may be rather deep or very shallow, are typical of the houses of the Upper Republican and Nebraska aspects in Nebraska and Kansas. The later round structures excavated from Lower Loup sites show, generally, an outer circle of 16 posts and, although no traces of leaner butts have been found, some such arrangement must have been present. That such was not always the case is indicated by one of the few floor plans which have been published; House 1 at the Gray-Wolfe site showed a circle of 112 small posts spaced at intervals of 10 to 20 inches at the edge of the floor (Dunlevy and Bell, 1936, pp. 164–165). A house thus outlined would not require leaners for the support of the earthen walls. Since there is no trace of leaners for most of the earlier structures, their use may be a late trait, and rather earlier in the south than in the north. However, small, out-of-pattern houses may have used them at an earlier period as I have suggested in another place (Metcalf, 1962). It is possible, of course, that the Mandan-Hidatsa group may have used leaners earlier than did the Arikara and that the trait was borrowed from them by the latter group, along with the Mandan-Hidatsa type of entranceway. At present it would seem that an amount of study comparable to that given to the pottery from a site must be given to the floor plans of the structures and the village arrangement before a true picture will be obtained for the cultural changes on the Plains.

## OTHER STRUCTURAL REMAINS

The remains of three structural features other than earthlodges were uncovered at this site. It was impossible to determine with certainty the nature and use of these structures.

*Feature 10* (*fig. 11*).—Immediately adjoining Feature 8 on the west was a small earthwork similar to those marking house sites, but rectangular in outline. It was not oriented to the cardinal directions, and Stout in 1908 indicated an entrance at the southwest end. There was no surface evidence for an entrance in 1951, either as mounds resulting from the collapse of an earth-covered and earth-banked vestibule or as a break in the continuity of the earthwork. Stout's

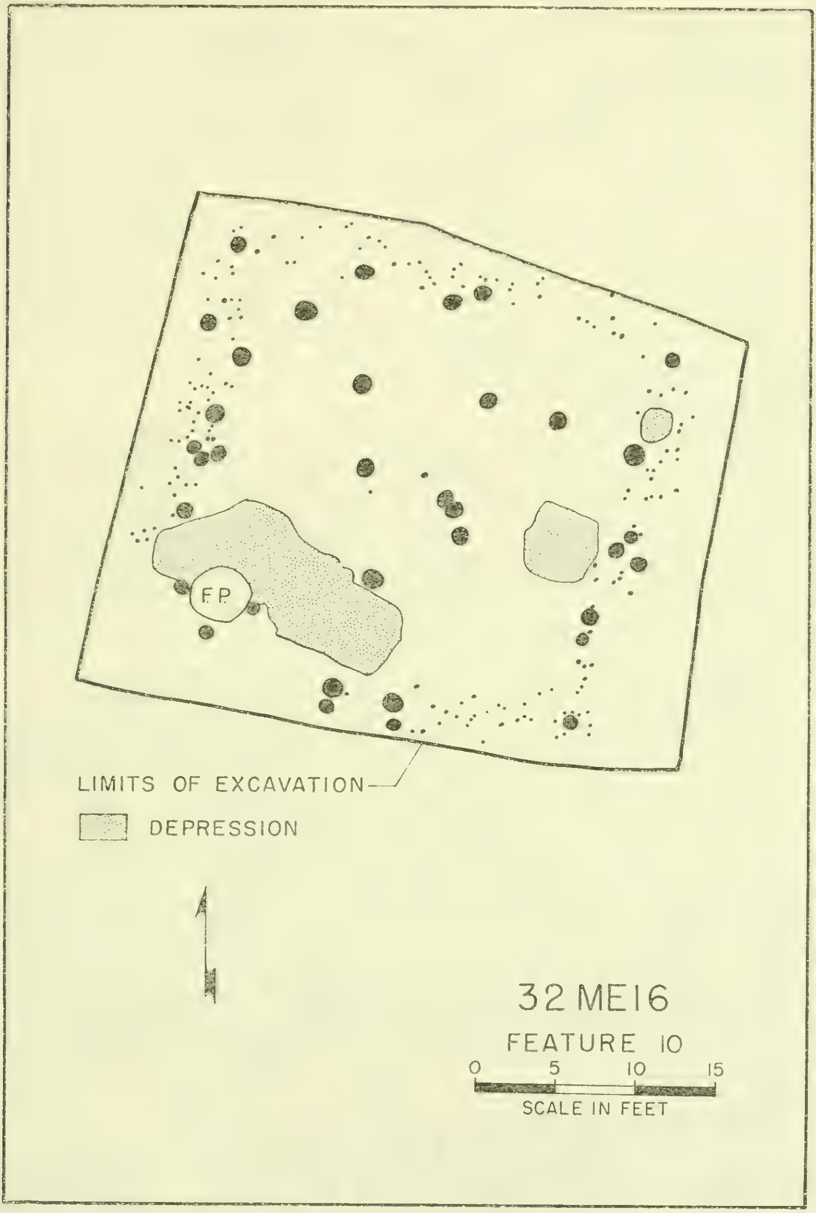
F.P.
LIMITS OF EXCAVATION
DEPRESSION
32 ME16
FEATURE 10
0
5
10
15
SCALE IN FEET

Figure 11.—Floor plan of Feature 10, Star Village site.

informant stated that "this square hut was used by Sun as a stable for horses" (Libby, 1908, p. 507).

Upon excavation the composition of mound and fill proved to be identical with that of the house sites, and no prepared floor was found. Thirty-four postmolds ranging from 6 to 12 inches in diameter were located. These form, in a rough way, a rectangular pattern made up of four rows of irregularly spaced molds. These rows are alined both north–south and east–west or, since the structure was not oriented to the cardinal points, with the long axis running west-northwest–east-southeast and the short axis at a right angle to this. This pattern measured, along the long axis, between 27 and 28 feet in length, with a width of between 20 and 21 feet. In no case is there a good alinement of the molds. Four molds 18 inches apart north–south suggest an entranceway 45 inches in width midway of the south line of molds.

In addition to the larger postmolds, over 150 small molds from an inch to just under 2 inches in diameter were present. These formed a zone or band about 15 inches in width which followed the outer row of large posts, being found between and outside the outer post positions, but seldom inside that line. As was the case with similar molds found in the houses, remains of wood present in them suggest that they represent the position of willow rods thrust into the earth.

Adding to the complexity of the situation encountered here was a group of features present in the southwest corner of the structure—a fireplace, a storage pit, and a feature which is believed to represent a borrow pit. The latter was first noted at a depth of 8 inches, where it showed as an area of mixed light- and dark-colored soil. It was irregular in outline, 16 feet in length and from 4 to 6 feet in width, with the long axis east–west. When cleaned of fill, it proved to have sides which varied from straight to rather steeply sloping and to have an irregularly flat bottom. The depth varied somewhat, owing to the irregularity of its floor, but it averaged about 24 inches below the floor of Feature 10. The fill throughout was of mixed light and dark earth with only a trace of charcoal present. No artifacts were found in it.

A small cache, Feature 14, at the southwest part of the borrow pit preceded that feature and had been cross sectioned and partly destroyed by it. The neck measured 11 inches across, while the maximum diameter of the body, which occurred some inches above the bottom, was 22 inches. The bottom was 28 inches below the present land surface. The sides were concave and asymmetrical (pl. 17, *a*), giving the feature a lopsided appearance in profile. It contained only earth of mixed color.

Partially overlying this cache was a fireplace, circular in outline and 36 inches in diameter. The shallow saucerlike basin was reddened from burning, particularly in the center. In the mixed ash and earth which filled it were found a few fragmentary animal bones, two pebbles, and several angular fragments of granite. Three rather large postmolds were near it, those on the east and west being at the very edge of the hearth while the one to the south was less than a foot away.

The history of this group of minor features is not too clear. The cache seems to be the oldest, although it may not be much older than the rest of the complex since its fill was no more compact than that of the borrow pit. It was cross sectioned by that feature and partially overlain by the fireplace. It was impossible to determine definitely whether the borrow pit was earlier than the fireplace, but since cleaning the fill from the borrow pit resulted in exposing the butt of one of the posts associated with the hearth, it would seem that the fireplace was the last of the three features to be constructed. The lack of evidence of water deposition in the fill of the borrow pit suggests that this feature was deliberately filled. Had the post butt been present when the borrow pit was excavated, it seems probable that it would have been removed at that time.

Two smaller and shallower basin-shaped pits, irregularly circular in outline, were present in the east quarter of the floor of Feature 10. The largest measured about 4 feet in diameter, and both were filled with soil of the same color and texture as that filling the one to the southwest. These, too, are believed to be borrow pits from which earth was removed for covering houses.

*Feature 15* (*fig. 12; pl. 17, b*).—Immediately east of Feature 1 was a low, but clear and distinct, ring-mound 22.5 feet in diameter. Since it was believed to mark a house site, the decision was made to excavate it in order to determine the floor plan of such a small structure. Excavation disclosed, not the expected circular house, but instead a subrectangular pattern of postmolds with one mold far out of line to the east and with one in the center. The line of molds indicated a structure 14 to 15 feet in width, 17 feet in length along the north side and 12 feet along the south side. These molds did not indicate the use of large posts, none of them measuring over 6 inches in diameter. A few of the smaller molds, such as would be produced by willow rods, were present, and in one the butt of such a rod was found.

A fireplace in the extreme southwest corner was basin-shaped and 6 inches in depth. It measured 26 inches north–south and 21 inches east–west. Three postmolds 4 to 5 inches in diameter were present to the east, south, and southwest of it at a distance of from 2 to 6 inches from its rim, while the butt of a willow rod 2 inches in thickness stood some 6 inches from it on the west side.

Basically Features 10 and 15 seem to be closely related in floor plan, although Feature 15 was smaller and lacked both the number of postmolds present in Feature 10 and the zone of small molds surrounding it. Each had a fireplace in the same position, and with each of these a number of small postmolds were closely associated. Hartle, who directed the excavations here, believed these features to represent platforms erected for drying meat, corn, pumpkins, etc., of the type described by Wilson for the Hidatsa (Wilson, 1917, pp. 98–104). If such was their purpose they were far less carefully constructed than those described by that student. It seems equally possible that they represent arbors or ramadas.

Pictures taken by Morrow at Like-a-Fishhook Village about 1870 show that arbors and drying platforms were both common at that time. Arbors were still to be seen on the Fort Berthold Reservation during the period of our work there, sometimes with one or more sides enclosed by long, untrimmed willow poles leaning against the roof edge to form a shade and windbreak. It must be remembered also, that Feature 10 is said to have served as a stable for horses. A makeshift structure made by enclosing a frame on all four sides with willows thrust into the ground and woven together would result in a floor plan like that of Feature 10. If, however, Feature 10 was used for stabling horses, one would expect the fireplace to have been destroyed by their trampling, although its position in the corner and the three posts planted closely about it might have served to protect it to some extent.

If Features 10 and 15 represent arbors or drying platforms, the presence of the low earthworks that outlined them is hard to explain. Although the mounds were somewhat lower than those marking the lodge sites, they were distinct and can hardly be accounted for except by the supposition that earth banked the original structures. It seems doubtful that windblown soil would have been deposited about walls in such quantities as to form these embankments.

One other possibility remains to be mentioned in attempting to account for these features. As has been previously mentioned, Latta noted the presence of a few log cabins in the village in June 1862. Not the slightest evidence of the former presence of log cabins was recognized by Stout in 1908, nor by the 1951 party, although the Missouri Basin Project reconnaissance party noted traces of the former presence of mud-chinked and plastered cabins at a number of places on the reservation.

In 1902 Olin D. Wheeler visited Fort Berthold preparatory to writing an account of the Lewis and Clark expedition. He was accompanied on this trip by the pioneer Miles City photographer, L.A. Huffman. At this time Huffman twice photographed "Leggins, a Mandan Indian." One of these pictures was published by Wheeler (1904, vol. 1, p. 241), the other more recently (Brown and Felton,

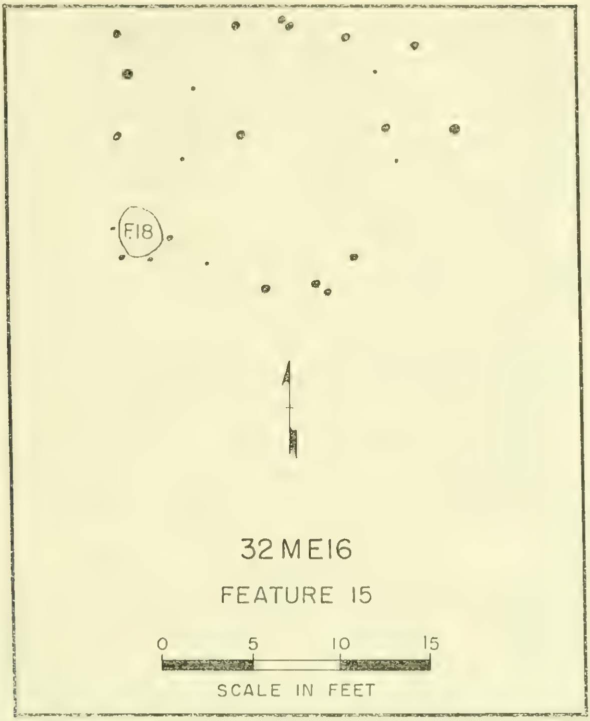

FIGURE 12.—Floor plan of Feature 15, Star Village site.

1955, p. 18). In each picture the Indian stands in the doorway of a low, flat-roofed hut which, while a far cry from the traditional earthlodge, still bears a generic resemblance to one. A horizontal stringer forms the top of the doorway at about the height of the man immediately in front of it. This rather light stringer supports the ends of poles laid horizontally, and on these brush has been placed and covered with a thin layer of earth. Against the outside of the stringer light poles have been leaned in a vertical or slightly inclined position. These support a layer of brush which in turn is scantily covered with earth. Not too many details of the structure are shown in the photographs, but such a structure would be more likely to leave remains of the type represented by Features 10 and 15 than would a drying rack of the type shown by Wilson, and I am inclined to believe that habitations of this type are represented by the excavated remains.

Perhaps the log cabins of Agent Latta, "put up in good style, with fireplaces and chimneys," were actually two or three makeshift pole and brush or wattle and daub huts, with earth heaped up about them. The excavated features had fireplaces present in one corner. Mud and stick chimneys propped and steadied with small poles would explain the small postmolds about the fireplaces and explain, too, their nearness to the hearth. Some such structure would account for Features 10 and 15 as well as any explanation thus far advanced. If such chimneys were present above the fireplaces one would expect a certain amount of lumps of burned earth to have been present in and about the hearths. Such evidence was not present. Stout's informant said Feature 10 had served as a stable. It may well have also served as a shelter for men.

*Feature 13* (*fig. 13*).—Before excavation Feature 13 showed on the surface as four very low mounds forming a rectangular enclosure. These were much lower than the ring-mounds of house sites and even lower than those at Features 10 and 15. The feature was located southwest of the village, across the ditch and between that feature and the county road (map 3). Locally it was believed to mark the site of a cabin occupied by a trader who came to the site with the Arikara, although in 1908 Stout was told that the trader occupied an earthlodge in the village. Unfortunately, Stout obtained no information regarding Feature 13.

In excavating this feature, an area measuring 50 feet east–west and 40 feet north–south was laid out to enclose the mounds completely, after which all soil was removed to a depth of 6 inches below the surrounding level surface. When the floor of this excavation was cleaned and smoothed, a faint discoloration of the soil could be seen. This could not be accurately delimited since, faint at best, it merged without a sharp break into the surrounding soil at a point below where the mounds stood. The excavation was then deepened by scraping with trowels and shovels until it was lowered another 2 inches. At this point all discoloration had disappeared, and nearly 170 small molds from 1 to 2 inches in diameter were revealed. These were but a few inches in depth and not infrequently contained a small bit of decayed wood, presumably of willow or other saplings. These rods had been planted, not in rows, but irregularly in a band from 22 to 36 inches wide and measuring 33 feet in length east-west, 32 feet in width at the east end, and 27 feet at the west end. The mold-free area thus enclosed measured approximately 25 to 27 feet in each direction. No artifacts came from the excavation.

I find it impossible to determine what, other than a brush-fenced enclosure, is represented here. It definitely was not a log cabin nor are any of the molds large enough to have held posts of the size required for a ramada or a drying platform. In some ways it is reminiscent of a brush-fenced tobacco garden described for the Hidatsa (Wilson, 1917, pp. 126–127), and it may have been such. On the other hand it may have served as a small corral in which horses were penned. The low mounds about it may have resulted from blowing soil trapped by weeds caught and held by the closely set rods of the fence, although this seems highly improbable.

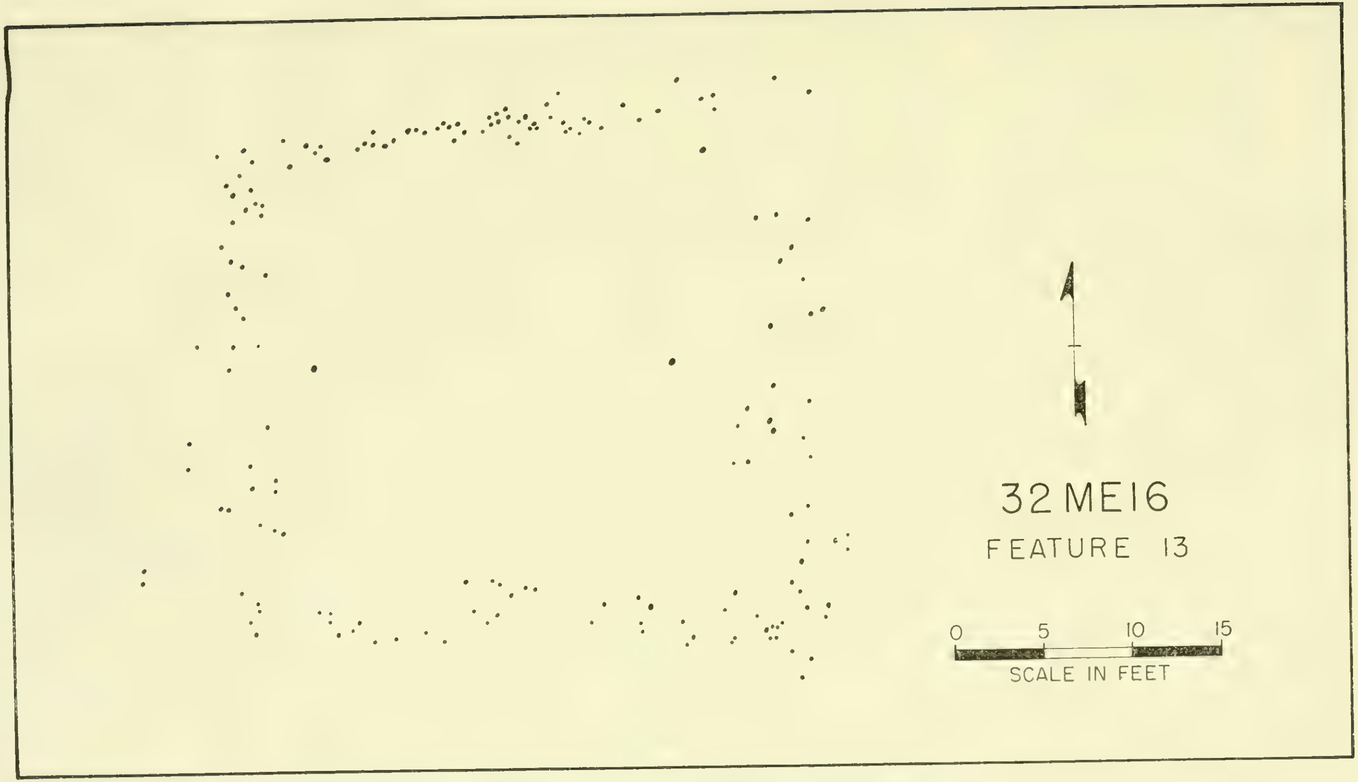
32 ME16
FEATURE 13
0
5
10
15
SCALE IN FEET

FIGURE 13.—Floor plan of excavation, Feature 13, Star Village site.

## DITCH AND DITCH TESTS

In 1908 the ditch which enclosed the site was described by Stout as about 6.5 feet wide and from 1.5 to 2.0 feet in depth, with a mound showing that the earth removed in its construction was thrown to the outside to form a breastwork. In 1951 the ditch measurements showed a range in width of from 2 to 11 feet with an average of slightly over 6 feet. The width varied sharply from place to place, suggesting that it was dug in sections by individual groups. In 1951 the depth was not as great as in 1908 and varied from 12 to 15 inches, although the low embankment caused it to appear greater. The earth removed in digging it appears to have been, generally, piled on the outer rim, but at every place where it was trenched it was found, when a level-line was drawn across it, that a low embankment was also present on the inner side.

Local traditions gathered by the 1951 party, nearly 90 years after the site was abandoned, are contradictory in regard to the time when the ditch was dug. It was asserted by some that the ditch was not dug until after the battle with the Dakota. Other informants stated that it was dug during the first night after the beginning of hostilities, with the entire population—men, women and older children—joining in a concerted effort to complete it before sunrise. This tale appears to have been told to Stout, also, for he says, "Ditch thrown up when Arikara had big fight with Sioux." On the other hand some informants in describing the battle stated that many Dakota women were in the village when the fighting began. The gates were immediately closed and, according to this version of the affair, the women were captured and their relatives forced to ransom them with horses. This tale implies that the village was palisaded, but doubt is cast upon it at once by the fact that only the scantiest evidence of palisade posts was found in the limited excavations made in and about the ditch.

*Feature 7* (*fig. 14*).—In a number of places (map 3) no evidence of a ditch could be found for a short distance. These breaks in the continuity of the ditch were presumed to represent the entrances, and the largest of these was investigated. This was done by stripping the sod from the area and carefully excavating some 4 feet of the ditch on each side of the break.

Feature 7, as this excavation was known, was located east of the center of the south line of the ditch. No trace of the postmolds of a stockade was found, making it probable that no gate existed here and that the breaks in the continuity of the ditch were merely sections allowed to remain undug for convenience of entry. Most of the earth removed in digging had been piled on the outer edge of the trench, but a small amount was thrown up on the inside as well. Profiles taken here show the ditch, at this point, to have been rather shallow, measuring originally from 3.5 to 5.5 feet in width, with a depth of

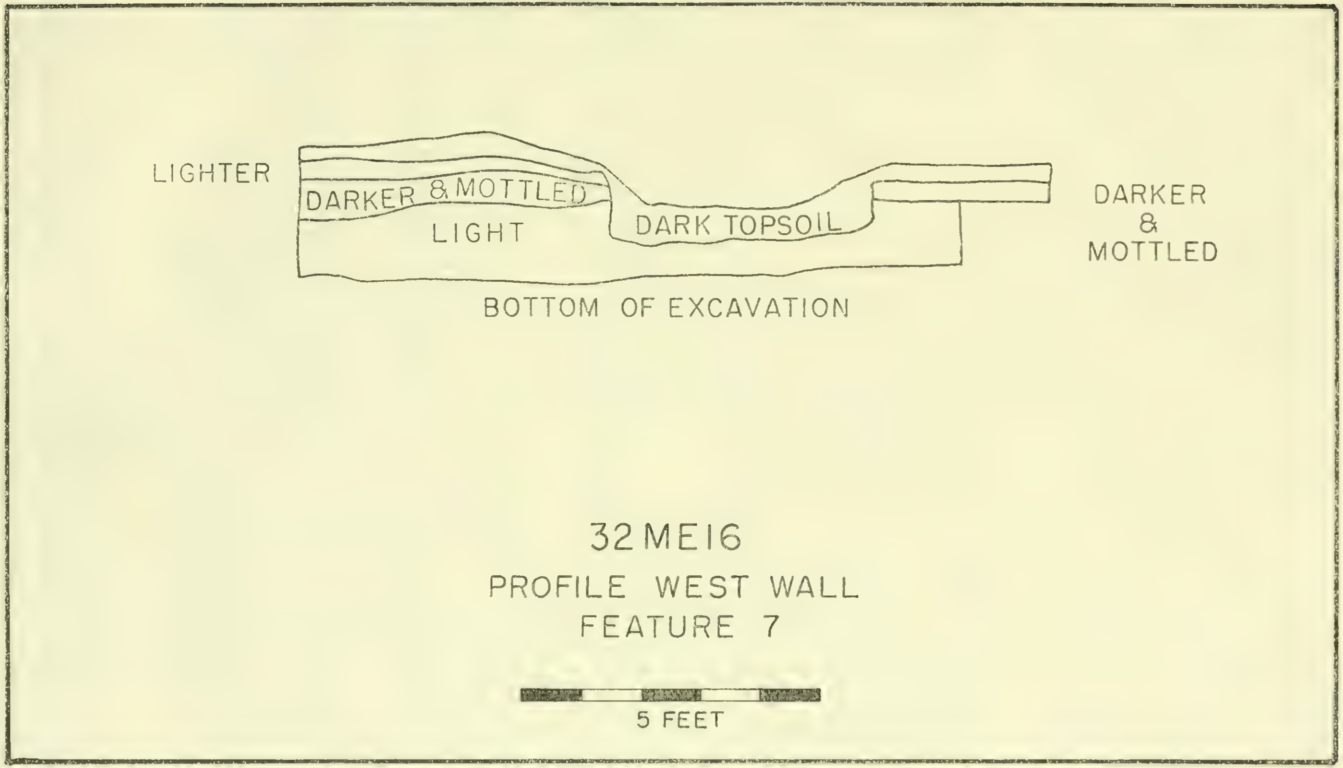
LIGHTER
DARKER & MOTTLED
LIGHT
DARK TOPSOIL
DARKER & MOTTLED
BOTTOM OF EXCAVATION
32ME16
PROFILE WEST WALL
FEATURE 7
5 FEET

Figure 14.—Profile of west wall of Feature 7, Star Village site.

from 1.5 to slightly over 2.0 feet. The walls were nearly vertical. When newly excavated the rampart of loose earth must have given a measurement of nearly 3 feet from its top to the bottom of the trench and afforded ample protection to men crouched behind it. Before excavation, the bottom of the trench at this point measured from 5 to 10 inches below the general level, and the outer mound measured rather uniformly 5 inches above the level of the surface in front of it, although in one place it dropped to but 3 inches in height.

*Features 16 and 17* (*figs. 15 and 16*).—Two narrow exploratory cuts made close together across the fortification ditch were assigned these record numbers. These cuts were laid out approximately northeast–southwest to cross the ditch at a right angle, and were located a short distance southwest of Feature 1, in the northwest part of the site (map 3). Profiles of these cuts show that the trench at this point had sloping sides and that the earth removed from the ditch was thrown to both the inner and outer sides of that feature. Before excavation the ditch measured, at this point, from 8.5 to 10 feet in width, the measurements being taken from crest to crest of the bordering mounds, while the depths varied from 10 to 18 inches. The original width of the ditch could be accurately determined only for the lower portion, the upper part having been destroyed by slumping. In one cut the bottom of the original trench measured 2 feet in width, while in the other, at a point 20 feet away, it measured 4 feet. The original depth of the trench at the points where these exploratory cuts were made varied from 18 to 24 inches, which, with the loose soil piled carefully in front and behind, probably furnished enough protection for the village defenders.

A post butt 6 inches in diameter was revealed in the center of the outer mound by one of these cuts. This butt extended from just below the surface of the outer embankment to a depth of 18 inches, its base being slightly more than a foot below the original ground level. Apparently it was planted before the earth was heaped up to form the rampart. Bad weather brought the season to a close before it could be determined whether or not an effort had been made to palisade the village at this point. Perhaps an occasional post was planted in the rampart to carry crosspieces over which robes and blankets were thrown to form a screen, a trait reported for the Mandan by Verendrye over a hundred years earlier (Haxo, 1941, p. 263).

## CACHES

Subsurface storage features, indicated by small circular depressions, were present but not common at the site, and the depressions were noted both inside and outside the ring-mounds. Except for the one found and described in connection with Feature 10, none was opened by the 1951 party. One was tested for depth and character of fill by the

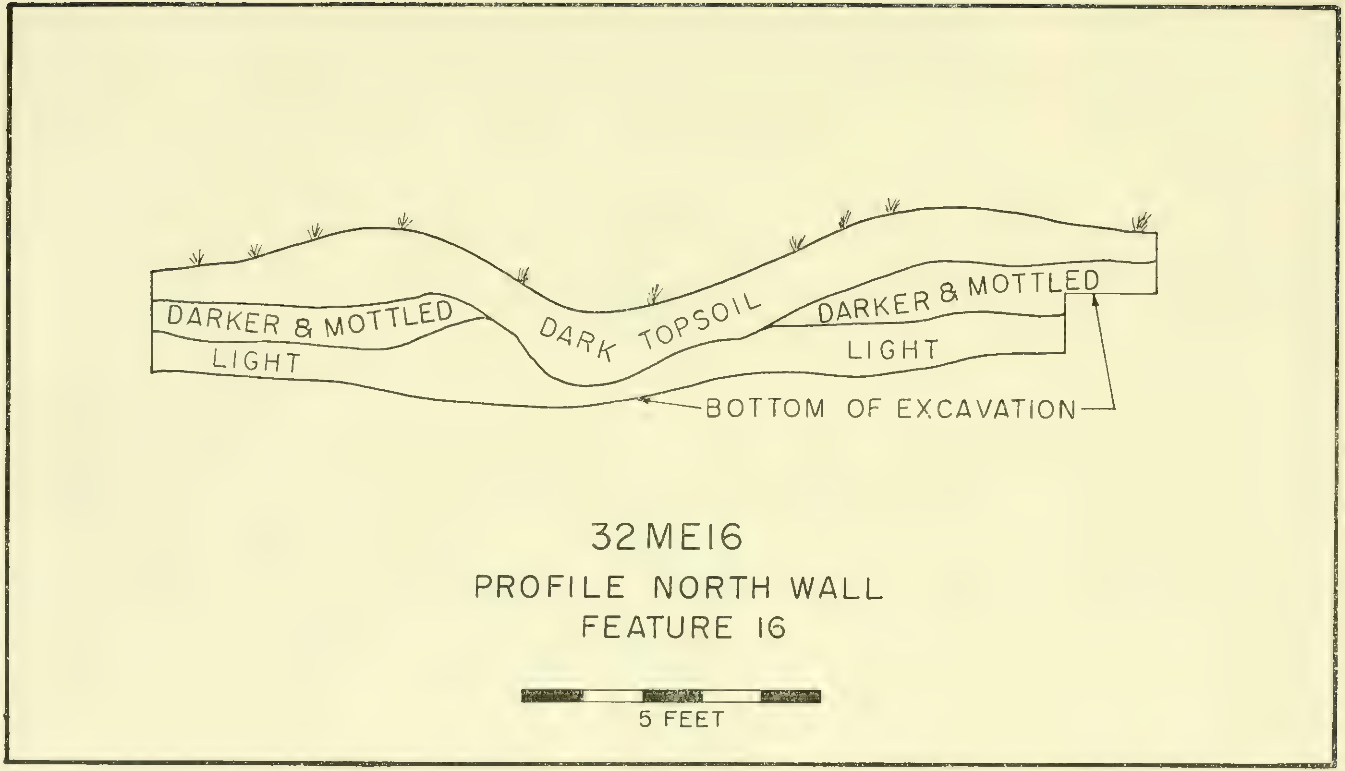
DARKER & MOTTLED
LIGHT
DARK TOPSOIL
DARKER & MOTTLED
LIGHT
BOTTOM OF EXCAVATION
32ME16
PROFILE NORTH WALL
FEATURE 16
5 FEET

FIGURE 15.—Profile of north wall of Feature 16, Star Village site.

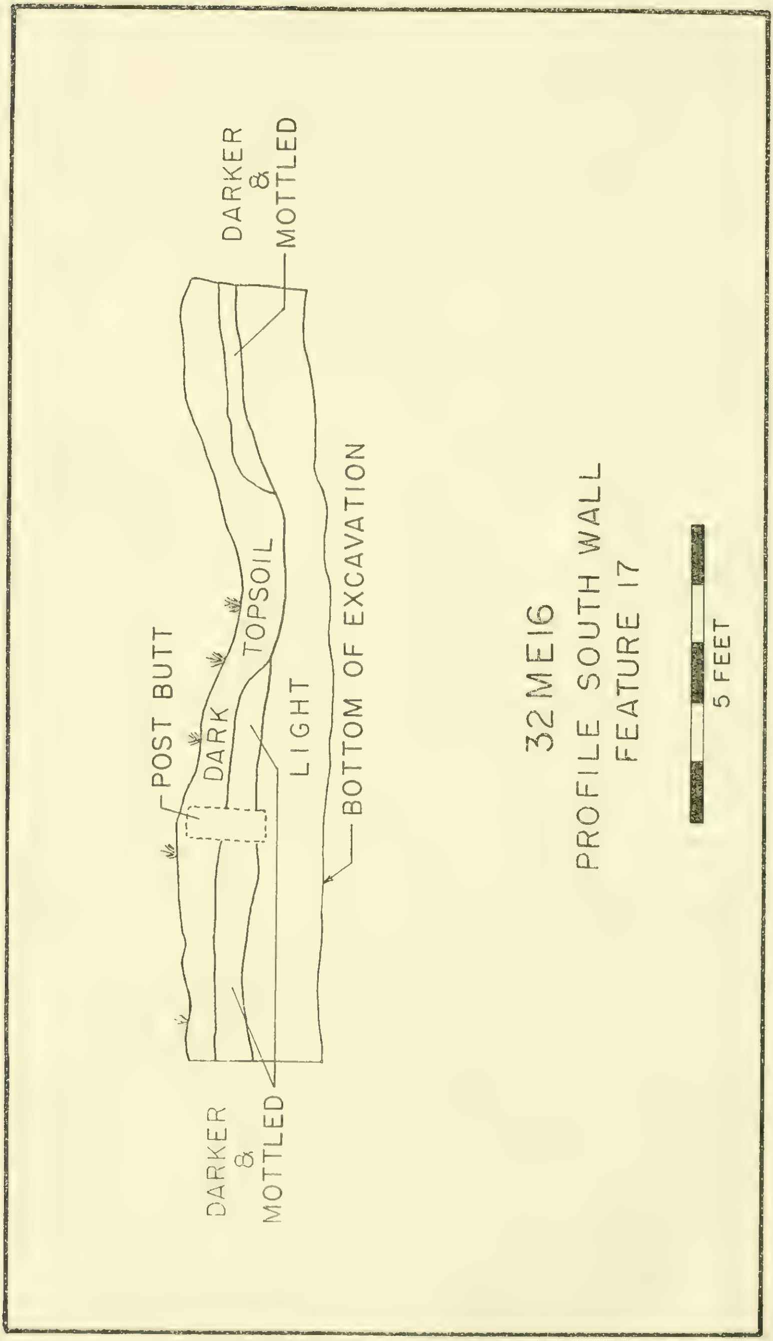
DARKER
&
MOTTLED
POST BUTT
DARK
TOPSOIL
LIGHT
BOTTOM OF EXCAVATION
DARKER
&
MOTTLED
32ME16
PROFILE SOUTH WALL
FEATURE 17
5 FEET

Figure 16.—Profile of south wall of Feature 17, Star Village site.

reconnaissance team in 1950. This feature, which was inside a house ring, was filled with poorly compacted dark soil which contained a few flecks of charcoal. It was 3.7 feet in depth, and the bottom was covered with decayed fragments of bark.

Stout (1908) noted that caches were not abundant, but that they were well marked, cisternlike depressions, having a neck about 2 feet in diameter and widening out below. At the time of his visit some of these features were still 4 feet deep with their bottle-shape well preserved, while others were two-thirds filled, evidently by slumping.

## ARTIFACTS

Because of its short period of occupation the yield of artifacts from the site was small. Only a double handful of small sherds was recovered. Worked stone was not abundant and trade objects were scarce. In all, 733 objects were recovered at this site. This figure includes not only the sherds, beads, tool and weapon fragments, ornaments, etc., but also chips and stone fragments, shells, and broken bones, whether the latter were identifiable or not. Excavation of the various features resulted in uncovering an area of somewhat less than 1,500 square yards—approximately 13,400 square feet. Since few of the excavations were more than a foot in depth, it is probable that not over 450 cubic yards of earth was moved. In terms of artifact admixture this means that, roughly, seven objects were found for each four cubic yards of earth moved, or between four and five objects for each truckload.

Scarce as the trade material was, the high percentage of glass and metal objects in proportion to those of native origin is not surprising in view of the date of occupation and the fact that for the preceding quarter century the Arikara had lived beside the trading post at Fort Clark. The proportion of objects of aboriginal workmanship recovered from the site may still be misleadingly high. Most of the worked stone material recovered is deeply patinated, suggesting that it had lain there much longer than the 90 years which had elapsed since the site was used by the Arikara. Nearly all terraces along this section of the river have been utilized as campsites at various times by Indian groups and most of them yield a few artifacts when closely examined. At most of the terrace points in this area it would be a matter of surprise if excavations comparable in extent to those made at Star Village did not yield flint flakes, a few objects of chipped stone, and a few sherds. The wide distribution of these campsites, coupled with the shortness of the Arikara occupancy of Star Village, gives rise to the suspicion that much, if not all, of this type of material recovered there antedates the village. I suspect that had the village been occupied for several years, the proportion of trade objects would have been much higher. Had as much excavation been done between the houses as was done in those features, the objects of native manufacture might have greatly exceeded those of trade origin.

## POTTERY

The site yielded a total of 308 potsherds of aboriginal origin, only 4 of which were from rims. These four came from two vessels, and it is probable that at the outside not over four or five vessels are represented in the entire collection. The find spots of 7 (2.27 percent) of the 308 sherds are unknown. The remaining 301 came from three features, and it is interesting to note that these were all in the northern part of the site, nearest to the terrace edge. Feature 1, the first house excavated, yielded 288 body sherds and 3 rim fragments, 94.48 percent of the total amount. Nine body sherds (2.93 percent) came from Feature 8, and one sherd came from Feature 10. Four sherds differ significantly from the bulk of the material and are omitted from the following description to be discussed separately.

The exterior surfaces of the bulk of the sherds vary in color from light gray to black, with neither shade predominating and both colors sometimes found on a single sherd. The interior surface is predominantly black, as is the core. The paste is well worked, smooth and even in texture. Fresh breaks have a granular appearance, and the edges appear crumbly but actually are not so. There is little or no splitting. The paste is tempered with what appear to be particles of very finely pounded granite, rather evenly distributed. Finely divided particles of mica, probably originating in the tempering material, occasionally spangle the surfaces. The ware is hard and apparently rather brittle since most of the sherds are very small. No specimen of this ware from the site has a single measurement exceeding 6.2 cm., and few exceed 5.0 cm., in their greatest dimension.

Measurement of 100 body sherds picked at random showed a range in thickness of from 2 to 13 mm., but with never more than a 2 mm. range in any single sherd, a lack of variability possibly due to the small size of the specimens. The extremes of thickness were each represented but once. Seven percent showed a thickness of 8 mm. The most common thickness was 5 mm., 32 sherds showing that measurement, while 25 sherds measured 4 mm. Over half the sherds are thus seen to measure 4 to 5 mm. in thickness, while 77 percent fall into the 4 to 6 mm. group. Thirteen sherds measure but 3 mm. in thickness, and only one measures 7 mm. in thickness. The three rim sherds present, which are all from a single vessel, average thicker than do those from the bodies. At a point 6 mm. below the lip these sherds have a thickness of 8 to 10 mm.

The exterior surfaces of body sherds are simple-stamped, bearing the impression of a grooved or thong-wrapped paddle (pl. 12, *r*, *s*, *w*).

Ridges and grooves appear to be vertically placed. After the stamping had taken place, the surfaces were polished, often to such an extent as almost to erase the stamp impressions (pl. 12, *q*, *s*). A few sherds that appear to be from the upper bodies and necks show traces of striae which may be the result of wiping with a stiff brush, perhaps a bundle of grass or a corncob. However, the smoothing process was carried to such lengths on these sherds that this wiping is only suggested (pl. 12, *v*). Interior surfaces are well smoothed and under a low-powered lens often show fine cracks. On both surfaces the finishing process has resulted in drawing the finer particles of clay to the surface and producing a burnished appearance.

The sherds are so small that little can be determined regarding vessel shape, but the curve of the rim sherds suggests a vessel of between 1 and 2 gallons capacity.

The rim sherds have gray exterior and black interior surfaces. Both surfaces are well smoothed but not burnished. The lip is flat, rounding slightly at the margin. A rim flaring slightly outward for half its height and then rising vertically is indicated, and the upper half has been slightly thickened. Decoration consists of a row of finger-nail impressions immediately below the lip. The nail was pressed into the paste and pushed forward, raising a small quantity of the paste and producing an oblong depression bordered at one side by the small ridge of displaced paste. Before the nail impressions were made, the exterior was marked by a row of short, diagonal incisions, each of which was almost obliterated by the nail impressions (pl. 12, *x*, *y*).

None of these sherds suggests a markedly decadent industry, and I am inclined to believe that they date before the village occupation of the terrace. In comparison with the sherds from the upper level of the Dodd site and those from the Phillips Ranch, Buffalo Pasture, and Cheyenne River sites, which are almost certainly Arikara, I can see only the most vague and general resemblance. Sherds from the Leavenworth site closely resemble those from the four sites mentioned above, and if more work proves these sherds from Star Village to be of Arikara origin and to date from 1862, then a great change had occurred in the ceramic tradition of the group in the two generations which had elapsed since they had left the last South Dakota site.

One small rim sherd and three body sherds which have been excluded from the above description remain to be mentioned. For the rim sherd the exact find-spot within the site is, unfortunately, unknown; the body sherds came from Feature 8. All undoubtedly belong to the Stanley series (Lehmer, 1954, pp. 42–45). The rim sherd probably belongs to the Stanley Wavy Rim type since, although very small (pl. 12, *t*), enough remains to suggest "the characteristic wavy or sinuous effect . . . [of] . . . the lip and rim when seen from above" (ibid., p. 48). If this ware is correctly identified as Arikara, these four sherds, slightly over 1 percent of the total, are all that were found to represent the ceramic tradition of that tribe at this site.

That the Arikara were still using pottery during their occupation of the site is evidenced by a statement of Lewis Henry Morgan who visited them while they were building Star Village. Morgan's description of the pottery leaves much to be desired. He describes it as dark in color and says "I saw them use earthen pots to draw water from the river. One of these, which would hold about six quarts, with a string adjusted about the neck, was let down into the Missouri, filled and then carried to the lodge. It was of the usual shape of earthen pots or water jars, slightly contracted at the neck and bordered with a rim, around which the string was secured" (Morgan, 1871, p. 40).

## WORKED STONE

Most of the smaller stone objects from this site are made from the so-called "Knife River flint," a variety of dark-brown chalcedony which is abundant throughout the area. The Crowley flint quarries, located some miles southwest of the town of Beulah, N. Dak., are a well known source of the material, but it is also present as slabs and nodules in gravel exposures and in the bottoms of the deeper coulees. A characteristic of this material is its tendency to change color upon exposure, the caramel brown of the freshly broken surfaces eventually changing to a mottled, milky blue. Little is known regarding the length of time which must elapse before this color change becomes apparent, but an artifact from the excavations at Rock Village (32ME15) gives some data. This object, the faces of which are deeply patinated, has been reworked, exposing the natural color of the stone along the edges. These edges show no sign of patination although the object comes from a site which is provisionally dated 1825–1840, (Hartle, MS.), and the reworking must, therefore, have occurred over a century ago.

*Projectile point.*—The one stone projectile point found at the site came from Feature 1. Fashioned from Knife River flint, it belongs to Strong's NAa1 type (Strong, 1935, p. 88 and fig. 7), being triangular in outline, with a straight base and side notches. It measures 3.5 cm. in length, 1.7 cm. in width at the base, 4 mm. in thickness, and weighs 1.3 grams. The workmanship is excellent, the chipping is well controlled and the retouching is fine and delicate (pl. 12, *o*). Both faces are markedly patinated, and the object probably antedates the village.

*Blades.*—Three fragmentary bifacially flaked objects have been placed in this category. All were found at Feature 1, at the extreme northwest corner of the terrace. The largest and most nearly complete specimen is of Knife River flint and markedly patinated (pl. 13, *b*). Both ends are damaged but it appears to have been leaf-shaped in outline originally, closely resembling or identical with Strong's NAb2 type (1935, pp. 88, and fig. 7). It has been fashioned from a large flake, the chipping is good, and the edges have been carefully retouched. One edge is blunted as if by use in cutting and scraping. In its broken state it measures 8.4 cm. in length with a maximum width of 4.8 cm. and is 8 mm. thick.

The second of the three objects, made of the same material, but unpatinated, is the basal portion of a blade belonging to a type which is common in the area. Three edges are worked, the fourth shows a sharp break. The fragment is rectangular in outline and measures 2.1 cm. in length, broken, by 1.8 cm. in width. It is 5 mm. in thickness (pl. 12, *i*). Workmanship is excellent. Complete artifacts of the type to which this blade belongs were recovered from Rock Village (32ME15) and from 32ML39, the Nightwalkers Butte in the Bull Pasture site. The third blade fragment is made from some opaque gray stone and is roughly shaped and flaked, with but little retouching present. The undamaged end is pointed. The fragment measures 4.4 cm. in length, 3.2 cm. in maximum width, with a thickness of 1.1 cm. (pl. 12, *p*).

*Gunflint.*—An object of somewhat translucent light-gray chalcedony came from the fireplace of Feature 3. One face is flat, the other shows three major facets, one of which is along the center and forms the face, the other two bordering this and forming bevels. All four edges have been finely retouched on both faces, and two of the edges are dull and battered. It measures 2.8 cm. by 2.3 cm. in length and width and is 6.5 mm. in thickness (pl. 12, *h*). In shape and dimensions it suggests a gunflint. Since it is not made of the type of flint used commercially for these objects, it may be of native manufacture from local material.

*Flake scraper.*—A flake of Knife River flint, roughly triangular in outline and unpatinated, came from Feature 12. It measures 4.0 cm. in length, with a width of 3.0 cm. across the base. One edge has been smoothly and evenly retouched on one face. The opposite edge is somewhat nicked, suggesting a use-retouch resulting from use in cutting and scraping (pl. 12, *k*).

*Other fragments and flakes.*—From Feature 3 came an object of dark, flintlike material which is chipped on both faces and on three edges, the fourth edge showing a fracture. The workmanship is not particularly good, and the object appears to have been subjected to considerable heat which has caused a small amount of flaking on the faces. It may be the base of a blade or may have functioned as a scraper. The fragment measures 3.1 cm. in length, with widths of 2.0 and 3.1 cm. across the ends and a thickness of 5.5 mm. (pl. 12, *g*). What appears to be another fragment came from Feature 8. It is made from gray chalcedony, is flaked on both faces and has one carefully retouched edge. It may be a blade fragment or a simple flake tool.

Thirteen unpatinated flakes came from the site. Four of these have an uneven use-retouch on one or more edges.

*Other stone objects.*—Two slabs of micaceous schist came from Feature 8. The largest measures 18.2 cm. in length, 9.0 cm. in width and 3.1 cm. in maximum thickness. The smaller specimen has a length of 17.6 cm., is 7.0 cm. wide, with a maximum thickness of 3.1 cm. These slabs have been split from the parent bed in such manner as to produce a wedge-shaped cross section, and the thin edge of each is somewhat worn and polished. It is impossible to determine definitely whether this appearance is due to weathering or to the use of the objects as tools. Conceivably they could have served as scrapers in the preparation of large skins for tanning, and I suspect that they were so used. Analogous objects were found in the course of very limited tests which were made in the site of the winter village from which the Arikara moved to Star Village. If these objects functioned as scrapers they furnish an interesting parallel to the large, roughly fashioned quartzite side-scrapers used by the Pawnee until the very end of the buffalo hunting period.

In addition to the foregoing material, 21 stones or stone fragments were found in the excavations at the site, but there is little or no sign that they were used in any way. Two large pebbles are highly polished and may have served as pottery smoothers. There is much more indication that a piece of fine-grained sandstone had functioned as a whetstone. Three rough fragments of granite possibly represent the raw material from which pottery tempering was prepared by burning and pounding. A hemispherical iron concretion came from Feature 3. The rounding face is well polished, but there is no reason to suppose that the polish is due to other than natural causes.

## WORKED BONE

Very little bone, either as food scrap or worked into tools, came from the site. Only one piece was altered otherwise than by the cutting or breaking incident to butchering and food preparation.

*Hide tanner or grainer.*—From Feature 3 came an object made by cutting or breaking the proximal end from a bison femur (pl. 13, *d*). The outer shell of bone has been trimmed away on the sides in order that the cancellous inner portion thus exposed could be used as an abrader in the preparation of robes. These objects have a wide distribution on the Plains at the historic and early contact levels but are rare or absent in the earlier levels. Wedel has reported them from historic Pawnee sites and suggested that they were used for working brains and other substances into the fresh skins (Wedel, 1936, p. 83). They were also found at the excavation of Like-a-Fishhook Village

(32ML2) and were abundant at the Nightwalkers Butte in the Bull Pasture site, 32ML39. From South Dakota they have been reported from the Dodd and Phillips Ranch sites (Lehmer, 1954, pp. 68, 111).

*Bones showing cutting marks.*—A fragment of deer or antelope rib from Feature 1 shows hacking marks on the posterior edge. The narrow cuts are such as might have been produced by several blows from a sharp, heavy knife. From the large ceremonial structure, Feature 12, came the fragmentary horn core of an immature bison. A smooth, slanting cut along one side of the portion of skull still attached to the core shows it to have been removed by sawing. The core shows several ax-cuts at the base, suggesting an unsuccessful attempt to chop the core from the skull, after which it was removed with a saw. River Basin Surveys collections from such undocumented early contact sites as Phillips Ranch (39ST14), Buffalo Pasture (39ST6), and Cheyenne River (39ST1) contain a large number of bison horn cores which have been removed from the skull with some care.

### WORKED SHELL

River mussels evidently played a very minor part in the economy of the Arikara of 1862. Only four fragments of such shells were found at the site. One of these, from Feature 8, shows a few marks on one edge which may have resulted from cutting or scraping. All have been identified as *Anodonta grandis plana* Lea, by Dr. J. P. E. Morrison, Division of Mollusks, United States National Museum. This species is widespread in the streams of the Plains area and prefers streams with relatively clear water and with sandy or sandy mud bottoms. They were probably gathered from the small tributary streams rather than from the Missouri.

The one definitely worked shell object from the site is a broken abalone shell pendant from Feature 1. Although the base has been broken away it appears originally to have been trianguloid in outline, with the apex cut squarely across (pl. 12, *j*). It has been shaped by sawing with a sharp flint or by scratching grooves with a sharp stone or metal point which occasionally slipped, marring the surface of the object about the edges. The oval perforation, which is near the small end, was drilled from the exterior surface. There is little or no polish on the object except for such as might be produced by use. It measures, broken, 3.2 cm. in length, 2.2 cm. in maximum width, and 1.1 cm. in width at the smaller end. Denig, writing of the Crows, probably in 1856, says: "In large slits through the ears are tied sea shells cut into angular shapes, which are of a changeable blue and green color. These shells find their way from the coast of California through the different nations until handed to the Crows in exchange for other property" (Denig, 1953, p. 33). Although the Arikara may have obtained these and other West Coast marine shells in this way, it is known that traders, among them Denig himself, also carried abalone shells, and in the 1860's the price of an unpolished shell is reported to have been a good robe (Matthews, 1877, p. 28). The material seems to have been popular in this area, and a number of pendants of abalone shell were recovered during the course of excavations at Like-a-Fishhook Village (32ML2). Maximilian mentions the use of sea-shells as ear pendants by the Mandan and says they were obtained from other tribes, but he does not say what kind of shells were used (Maximilian, 1906, vol. 23, p. 258). Catlin's paintings made at Fort Clark show ornaments, which appear to be fashioned from abalone shell, which are worn suspended both from the neck and from the ears.

## TRADE OBJECTS

All objects of metal, glass, and non-native ceramics are included in this group even though some may owe their finished form to native workmanship.

*Knives.*—From Feature 1, where it was found thrust down beside a post butt, came an exceedingly well-preserved bone-handled dagger (pl. 13, *f*). This has an overall length of 19.0 cm. with a millimeter or two of length lost by the point having been slightly blunted. The blade tapers from tip to guard and measures 9.0 cm. in length, with a maximum width of 1.4 cm. and a thickness of 6 mm. at the base. For a distance of 1.5 cm. below the guard the blade is elliptical in cross section with the edges rounding and unsharpened. Below this point the blade is lozenge-shaped in cross section. The guard is a flat iron or steel plate 4 mm. thick, 3.6 cm. in length, with a maximum width of 1.2 cm. It is widest at the center and tapers toward the ends, each of which terminates in a small knob. The tang appears to be round, an extension of the blade, and to extend completely through the hilt, with the end smoothly riveted at the base. The bone handle tapers from butt to guard, the widest part being elliptical in cross section and measuring 2.0 cm. in width and 1.2 cm. in thickness. Near the guard the cross section becomes round, with a diameter of 1.2 cm., after which it thickens slightly where it meets the guard. At this point it is encircled with a narrow band of silver or German silver, the copper alloy of which has produced a faint green stain on the bone of the handle. The band, which is but 6 mm. in width and very thin, is decorated with two impressed parallel horizontal lines. The upper end of the hilt is rounding and has been carved in such fashion as to leave a portion of the bone slightly raised. The raised portion was fluted, forming a bas-relief of a pair of conventionalized shells which clasp the base of the grip.[3]

The blade of this dagger has been ornamented over the upper part. The rusting and consequent pitting of the metal incident to its 90-year burial not only make it impossible to determine the extent of decoration but also obscure the method and pattern. Apparently a half or two-thirds of the length of the blade was originally engraved with an arabesque design of flowers and foliage. Traces of gilding which still remain suggest that the engraving was once inlaid with gold leaf. Harold L. Peterson, Staff Historian, National Park Service, who examined this object believes it to be of French origin. This type of decoration was very popular from about 1800 to 1840, and large numbers of knives, daggers, and rapiers with blued steel blades and gold-foil inlaid engraving were made in France during that period. He suggests a date of between 1805 and 1820 for the dagger, admitting that it could be as late as 1840.

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[3] G. Hubert Smith has pointed out to me that the design on the hilt is reminiscent of the conventionalized drapery favored on 18th and 19th century funeral monuments.

A fragment of a very different knife came from Feature 5. This is the handle end of a common butcher knife. Enough wood still remains to show that the handle was originally about 11.0 cm. in length, with the cross section a flattened oval 2.4 cm. wide by 1.4 cm. thick. In order to attach the handle to the blade a slot about 5.3 cm. long was sawed into the solid piece of wood which formed the handle, and into this the flat tang of the blade was inserted and fastened by three small iron rivets. The much worn blade had broken close to the haft. The entire length of the broken object is 8.2 cm., 5.3 cm. of this being accounted for by the tang. The tang tapers toward the blade where it measures 2.1 cm. in width, the width at the end being 2.4 cm. The blade measures 2.4 cm. in width at the heel with a maximum thickness of 2 mm. (pl. 13, *g*).

*Projectile point.*—The one metal projectile point recovered from the site was found during the excavation of Feature 8. It is long and narrow, measuring 9.3 cm. in length, 7 mm. of this being accounted for by the stem. The maximum width of 1.8 cm. occurs at the shoulders. The stem, 6 mm. in width, with straight, parallel sides, widens sharply at the base to a width of 9 mm. It is little damaged by rust and weighs 9 grams (pl. 13, *n*).

There are some interesting changes in projectile points in the Plains area during the late precontact, early contact, and historic periods. In the late prehistoric period arrowpoints tend to be smaller and lighter in weight than those from the earlier sites, while the earliest metal points tend to be even lighter than those of stone. As trade goods become more common at the sites, arrowpoints rise in size and weight and eventually become heavier than the stone points which they replace. This may reflect a change in bows and/or in hunting methods, which in turn is probably related to the acquisition of the horse.

*Jingles.*—These objects, variously known in the literature as "jingles," "tinklers," or "danglers," are small cones rolled from thin sheet metal, either brass, copper, or iron and used to decorate clothing, bags, and other articles. A thong of fringe was pushed through the cone from the small end and knotted. The cone was then drawn down over the knot, and when each thong terminated in one of these objects a tinkling or jingling sound was produced with every movement. On the Plains they date back to the first introduction of metal and may be found in use even yet.

Three sheet iron objects of this type came from Feature 8. The largest is 3.5 cm. long and 1.0 cm. in diameter at the large end. The smallest is 2.3 cm. in length, and is somewhat flattened. It measures 5 by 8 mm. at the large end and half that at the point of the cone (pl. 12, *l*, *m*, *n*).

*Tools.*—An auger bit 2.5 cm. in diameter (pl. 13, *e*) also came from Feature 8. Overall length of the object is 29.5 cm. The twist, including the pilot, measures 13.2 cm. in length and makes four complete turns. The shank has been twisted and the upper end raggedly broken. For about half its length the shank, which in cross section is square with slightly rounded corners, measures 1.0 cm. in thickness. The upper end has been heated and pounded, widening and flattening it, probably to allow the shank to be more firmly gripped by a crude cross-handle.

From Feature 3 came a fragment of a half-round file, 5.5 cm. in length (pl. 13, *m*), and from Feature 15 came another more than twice as long (pl. 13, *h*). The shorter fragment is 1.2 cm. wide and 7 mm. thick; the other measures 1.0 cm. in width by 6 mm. in thickness. Neither specimen shows any taper toward a narrow end.

*Metal cups.*—From Feature 8, the most prolific area in trade material at the site, came two sheet iron "tin" cups of identical capacity and pattern. The lip of each is battered and bent inward, making it impossible to obtain an accurate measurement of their height. One has lost its handle, but traces of solder indicate its former position. The bottoms of the cups are flat and fastened to the sides by crimping. The sides are made of thin strips of sheet metal bent into short cylinders with the ends joined and secured by crimping. There is no evidence that any seams were soldered. A large patch of solder on the bottom of one cup suggests the repair of a leak rather than the fastening of a seam. The lips appear to have been originally rolled. These cups measure 9.5 cm. in outside diameter, are approximately 8.0 cm. in height, and are of 1 pint capacity. The edges of the handles were originally turned under and flattened. One end of the resulting strip was soldered to the lip of the vessel, bent down and inward, and the other end soldered to the side of the cup at a point 3.0 cm. above the bottom (pl. 13, *a*).

*Nails.*—Fifteen nails and spikes came from the site. Thirteen are of the type known as cut nails, with a rectangular cross section. Two size groups of this type are present, one being 7.6 cm. in length (pl.

13, *l*), the other 8.2 cm. long (pl. 13, *k*). Most of the specimens are more or less bent but two show no evidence of having been used.

One specimen of a hand-made or "wrought" nail was found. The point of this object has been broken off, and most of the head is missing. It measures 8.3 cm. long in its broken state and is 4 mm. in thickness near the broken end (pl. 13, *j*.).

The last specimen is of the type known as a bridge spike (pl. 13, *i*). The head is hexagonal, 1.75 cm. in diameter and 6 mm. thick. The shaft is 8 mm. square to a point about 1.0 cm. from the tip, after which two sides are beveled to form an edge. It is 14.4 cm. in length, has been used, and is slightly bent. The presence of such an object in an Indian village on the upper Missouri River in 1862 is rather surprising. They were used to fasten planks to heavy timbers and to secure large hinges and hasps. They may have been in common use on the steamboats of the period or have been used about the trading posts. Although none were found during the course of excavations on the site of the second Fort Berthold in 1952, they are not uncommon in collections made by Missouri Project archeologists during the excavation of trading-post and army sites dating from the late 1860's.

*Miscellaneous metal objects.*—An iron band or collar came from Feature 8. This object, which is made from a strip of sheet iron 2 mm. thick and from 3.0 to 3.2 cm. wide, is in the form of a hoop, the two ends overlapping and being fastened with two iron rivets. Two holes near one edge but on opposite sides of the hoop still retain the ends of a long rivet or, more probably, since the metal of the hoop has in each case been driven inward during the piercing process, of two rivets or small nails. The hoop tapers slightly, measuring 6.8 cm. in diameter on one side, 6.5 cm. across the other. The rivets which fastened it to its original seat are nearest to the wider side, and the edges of the other side are somewhat battered. I have no idea of its original function except that it suggests a ferrule used to protect the end of some wooden object (pl. 13, *c*).

A piece of sheet iron from the floor of Feature 12 was made by removing the bottom of a pot or bucket, after which the resulting band was cut and flattened. The material is heavy, measuring about 1 mm. in thickness. The object in its present condition is about 28.8 cm. wide and 62.5 cm. long. One edge appears to have been rolled over a rod approximately 0.5 cm. in diameter. Part of one bail ear is still attached and is fastened with three rivets over the seam where the ends of the original strip were crimped together. This ear is oval in outline and appears to have once terminated in a hook, now broken away. The size of this sheet of metal suggests that in its original form it was of about 12 quarts capacity.

A bucket bottom from Feature 8 comes from a much larger vessel, being about 30.0 cm. in diameter. It has been patched in two places by placing irregularly shaped pieces of sheet iron over small holes where they were pinned with narrow strips of sheet iron. These improvised rivets were simply pushed through slits, the ends bent sharply and both patch and rivets pounded. Both sides of the object are heavily soot-encrusted.

A thin piece of sheet iron, circular in outline, measures between 16.5 and 17.0 cm. in diameter. It appears to have been the bottom of a small bucket of about 1 gallon capacity.

A musket ball badly deformed by impact came from Feature 1. In its deformed state it measures about .60 caliber.

A strip of brass 3 mm. wide has been bent until the ends overlapped, forming a ring 1.65 cm. in diameter. It may have served as a finger ring or hair ornament.

Two pieces of thin sheet zinc came from the site. One, from Feature 8, measures 3.3 cm. in maximum length, with a width varying from 1.0 to 1.3 cm. Three edges have been cut, the other broken. It does not appear to be part of a tool or ornament, and its shape suggests that it is a scrap or trimming discarded during the manufacture of some other object. A semicircular fragment of zinc from Feature 1 is 2.0 cm. in width, and the outer edge is turned over evenly to form a narrow flange 4 mm. in height. The inner margin is generally serrated, but in a few places the metal extends past the average width and the serrations become small, closely spaced punctates. The object may be part of the lid of a small container, the central part of which was outlined by a circle of small punctates.

*Glass and earthenware trade objects.*—Four of the thirteen glass fragments from the site came from Feature 3. Two of them found in the fireplace and partially melted represent part of the mouth and neck and a fragment of the side and base of a clear glass bottle. An unfused fragment from the floor is fluted, and all may be parts of the same bottle. The fluted fragment has been identified as being from a bottle of the type known as a pocket flask.

A 2.0 mm. thick fragment of clear, flat glass came from Feature 5. One edge has been smoothed by grinding. It may be a mirror fragment. From the fireplace at the same house came an irregularly shaped fragment of dark greenish glass. It is 5 mm. in thickness, curved, and probably a bottle fragment.

The remainder of the glass fragments came from Feature 8. Two sherds from the floor are of the same dark-greenish bottle glass that came from Feature 5, one suggesting by its marked curvature that it formed part of a bottle neck. The other is the bottom of a pocket flask identified as dating about 1840–1860 (pl., 12, *a*). Five glass fragments from the fireplace do not show heat effects. All are of clear glass and represent two bottles. Two fragments are from the mouth and neck of a small medicine bottle, the mouth of which is finished with a flange (pl. 12, *f*). The other three fragments are curved and in size and shape suggest fragments from a modern beer bottle of clear glass.

From Feature 8 also came a single sherd of glazed earthenware the contours of which suggest that it came from a cup or small bowl. This sherd has been identified as Staffordshire white ware, with rather coarse paste. The white glazed exterior is decorated with a pale-blue glazed band 1.0 cm. in width and placed between narrower bands of black glaze (pl. 12, *e*).

A button of milk glass, 1.4 cm. in diameter and 3 mm. in thickness came from Feature 10. The underside is convex, the depressed center of the upper surface is surrounded by a band 3 mm. in width, beveled toward the edge. There are four centrally located perforations (pl. 12, *b*.)

Six fragmentary dull-white glass trade beads came from Feature 1. Two showed lengths of 8 mm. and were 9 mm. in diameter. One showed a length slightly greater than the width. The perforations were about 1.5 mm. in diameter (pl. 12, *c*, *d*).

From Feature 3 came a single dull-blue glass seed bead 3 mm. in width and thickness. Another bead of the same size and shape but black in color came from Feature 10. A dull-blue seed bead, size O, from Feature 1, and another from Feature 3 are much smaller, and a dull-white bead from Feature 3 is larger than the preceding beads. From Feature 3 also came 94 very small pink beads which measure 21 to 22 to the inch. Some of these have a white lining in the perforation.

Except for the six fragmentary specimens, beads of these types were used for embroidery purposes. They are undatable since they came into use at a very early period and can still be purchased.

## ANIMAL REMAINS

Animal bones were not common at this site, and all, regardless of condition, were saved. Few species and probably few individuals were represented. The 195 specimens returned to the laboratory yielded 55 identifiable bones from 5 species, in the following proportions:

| *Species* | *No. of bones* |
|---|---|
| Bison: | |
| Mature | 25 |
| Immature | 4 |
| Deer (or antelope) (mature) | 1 |
| Elk (immature) | 2 |
| Dog (or coyote): | |
| Mature | 1 |
| Immature | 21 |
| Turtle (*Chrysemya belli*) | 1 |
| Total | 55 |

By using the largest number of single skeletal elements present in the remains from the entire site to determine the number of individuals surely present we find bison, as might be expected, in the lead. Three mature bison are indicated by the distal ends of three right humeri, and one immature animal is represented by four bones. Dog (or coyote) was next most common, the 22 bones coming from at least 2 of these animals, 1 of which was mature and one markedly immature. A fragment of carapace indicated the presence of turtle, and deer (or antelope) was also represented by a single bone. Two immature dorsal vertebrae from a single find-spot were the only elk remains.

Breaking the animal bones down by find-spots we find them represented as follows:

| | Bison | | | Deer | Dog | | | Turtle | Elk | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Mature | Immature | Individuals | | Mature | Immature | Individuals | | No. of bones | Individuals |
| Feature 1 | 6 | 2 | 2 | 1 | | | | | | |
| Feature 3 | 4 | | 1 | | | | | | | |
| Feature 5 | | | | | | | | | | |
| Feature 8 | 4 | | 1 | | | | | | | |
| Feature 12 | 5 | 2 | 3 | | 21 | 1 | 2 | | | |
| Feature 10 | 1 | | 1 | | | | | 1 | | |
| Feature 15 | 2 | | 1 | | | | | | | |
| Provenience unknown | 3 | | 1 | | | | | | 2 | 1 |
| Total | 25 | 4 | 10 | 1 | 21 | 1 | 2 | 1 | 2 | 1 |

This table shows no animal remains from Feature 5. It may be that those for which the exact find-spot is unknown came from that feature. Disregarding the remains whose provenience is unknown, we find bison remains from all the other structures, including Features 10 and 15. Feature 1 yielded remains of two bison and the single example of deer or antelope from the site. The greatest yield in number of individuals represented is from Feature 12 which showed remains of two mature and one immature bison and two canines. It may be pointed out that the immature canine remains were made up of parts of a skull, including a lower jaw, right and left tibiae and fibulae, right radius, ulna, and astragalus, right and left calcanea, and right and left metapodials.

It is interesting that bison remains were found in both Features 10 and 15, those in Feature 10 being in the fireplace. From this structure also came the fragment of turtle carapace.

## VEGETAL REMAINS

Evidence of the vegetal foods of the Arikara were even more scantily represented at the site than were remains of the animal foods. A single charred corn kernel from House 1 represents the entire inventory of vegetal food remains from this village occupied by a tribal group identified in the Sign Language as "Corn People" or "Corn Eaters." Although this may represent an actual scarcity of this type of food, we must remember that corn is seldom found in any quantity on the floors of earthlodges and that no caches or middens were excavated at the site. Furthermore, the site was occupied for only a short time and that, too, during the spring months, at a time when normal corn reserves would naturally have been at a low point, and it was abandoned before a new crop was harvested.

## DISCUSSION

Owing to the combination of a relatively small area investigated and the paucity of cultural debris incident to the brief occupation of the site, less was learned about the material culture of the Arikara of the 1860 period than was hoped for when the project was initiated. A handicap to the interpretation of such data as were recovered is present in the lack of comparable excavation at the Fort Clark site which immediately preceded Star Village and where the Arikara had lived for the preceding generation. At the Leavenworth site, which precedes the occupation of Fort Clark, a certain amount of excavation has been carried out, but only a small part of this has been adequately reported. At the Fort Berthold site (32ML2) to which the tribe retreated from Star Village and where they lived until scattered upon individual allotments, a considerable amount of archeological investigation has recently been done, the full report of which is still in preparation.

However, the picture is less dark than the preceding remarks might indicate. A good impression of the life and history of this tribal group and its rapidly changing culture may be gleaned from the reports of the traders Truteau and Tabeau, the Journals of Lewis and Clark, and from the writings of such travelers as Bradbury and Brackenridge a decade later. Chardin's Fort Clark Journal, while primarily a source for study of trader contacts with the Mandan and Hidatsa, contains a few notes relative to the Arikara of 1837–38. Denig, also a trader, left an account of this tribe, and there are other references of varying importance. As has been noted earlier, Lewis Henry Morgan paused briefly among them in 1862 and left a short account of some of their tools and weapons still in use or whose use had been only recently abandoned. A few items regarding these northern Caddoans are to be winnowed from studies of the Hidatsa made by such students as Washington Matthews and Gilbert L. Wilson. Finally, there are the reports of the Indian agents and much material of varying degrees of value in the National Archives.

The impression gained from study of these records is of a steadily declining native culture, a decline which accelerated in speed through the years until, after the Arikara lost most of their material culture, their social and political system also broke down in the closing decades of the 19th century. With this impression the scanty archeological evidence from Star Village fully agrees. Although the bow was still in use in 1862, iron had replaced stone for arrowpoints, and a gun flint and a lead ball against an iron arrowpoint give a 2 to 1 ratio in favor of guns at the site. Iron knives had replaced the stone and bone blades. Steel files had taken the place of most of the sandstone and scoria abraders found at earlier sites. Iron augers were being used, and although not found, evidence on wooden and bone objects allows us to add axes and saws to the inventory of iron tools in use at the site. Pottery vessels, although recorded for the site, were much less in evidence, archeologically, than iron cups, buckets, glazed earthenware, and glass containers of Caucasian origin. Glass beads were not uncommon, and buttons were found. Although a shell pendant from the site is probably of native manufacture, the material owed its presence to trade. The number and distribution of iron nails at the site suggests that lashing with leather or sinew was less common than in former times or, alternatively, that wooden boxes were being used for storage, replacing to some extent the rawhide parfleche and bags presumably used by this group at an earlier period. It is regrettable that lack of funds forced the abandonment of plans to excavate the site of the winter village occupied by the Arikara during the preceding winter, which gave promise of a higher yield of artifacts.

To what extent acculturation had affected the more perishable items we have little or no direct archeological evidence. From museum collections we know that basketry was made until a much later period. We may suppose that cloth was used to a greater extent in common wear than formerly, and the finding of both glass and metal buttons at the site suggests that some garments of non-native pattern were in use there. Glass embroidery beads were relatively common and may well mark a decline in the use of porcupine-quill embroidery. Although the woven blanket had probably replaced the leather robe, it is not improbable that such trade items as beads, ribbon, shells, and mirrors and the use of metal tools allowed the making of more colorful ceremonial and war costumes than formerly.

It may be noted here that while objects of Caucasian origin are commonly referred to as trade material, not all of them were obtained by the native groups from traders. Presents made by the United States Government through the Indian agents formed a source of this material from an early period, and the flow of goods supplied by the Indian Department increased in volume after the beginning of the treaty-making period. Indian Department records in the National Archives contain a list of goods requested for the Upper Missouri Agency in 1862, to be distributed in accordance with the terms of the Fort Laramie Treaty. This list includes such items as cloth, guns, gunflints, powder and ball, combs, hoop iron, and kettles. Objects found at Star Village which are on this list include tin cups, at 60 cents per dozen, butchers knives costing $3.00 per dozen, and beads at $1.00 per pound.

In 1862 the earthlodge was still retained as the common type of dwelling, but evidence has been presented above for believing that an aberrant house form was present. However, the earthlodge itself had undergone a change in the approximately 100 to 125 years preceding the occupation of this site. The change from the house pattern found at the upper level of the Dodd site, at the Phillip Ranch, Buffalo Pasture, and 39ST1 sites has already been discussed in detail. The circle of closely set posts at the outer edge of the lodge had been abandoned, and a further change seems to have taken place in the entranceway, where the shorter Mandan-Hidatsa type appears to have replaced the longer entrance of the earlier period. The earthlodge of the Arikara of 1862 definitely cannot be described as semisubterranean.

It is of interest that no evidence of the presence of a screen between the entrance and the fireplace was found at this site. This was a marked feature of the lodges of the Mandan and Hidatsa, but as far as I am aware it has not been reported for the Arikara. The centrally located, plazalike open space in front of the ceremonial lodge may be a trait taken over by the Arikara from their sedentary Siouan neighbors, although the map of the Phillips Ranch site suggests a tendency toward a centrally located ceremonial lodge surrounded by a rather regularly spaced ring of houses (Lehmer, 1954, p. 84). More data are needed regarding this detail of Arikara village plans. It may be that an already existing trend was strengthened by the generation-long residence of the tribe on the site of the old Mandan village at Fort Clark where the ceremonial plaza was already in existence.

Earthlodges at Star Village fell into a general pattern in being circular, with central fireplace, four single or multiple primary foundation posts, and a variable number of outer support posts. Short, vestibule-type entrances were indicated. Actually there was a great variation between individual structures, and they conformed to pattern only in a general way. Specifically there was great variation in the number and position of the posts in the outer ring, in the centering of the fireplace, and in the centering of the four foundation posts.

Possibly the earthlodge pattern was breaking down at this time and the people of this group were following the older pattern only in a slovenly way. Data from Arikara houses built at a later period at Like-a-Fishhook Village should be of value in determining this.

Another possibility is that the building at Star Village was done in haste and that, had the occupation of the site continued, the structures would eventually have been rebuilt in conformity to the traditional method. A third possibility bearing on the house pattern as found here rests on the question of the readily available supply of suitable timber. Agent Latta reported that the village was being built adjacent to a good stand of timber. However, the post butts uncovered during the excavation of the site were small and one received the impression at that time that suitable timber was scarce and hard to obtain. Star Village and the smaller village immediately west of it contained about 100 houses. These would require a total of 400 large center posts, and well over a thousand would be needed for the outer ring. Assuming an average house diameter of 35 feet, 26,000 poles or puncheons with an average diameter of 6 inches would be required as leaners for the structures, and thousands more would be required for framing the roofs. This would put a heavy strain on the timber resources of an area where suitable timber was present only on the flood plain of the Missouri River. Moreover, it must be remembered that this site was in close proximity to the palisaded Mandan-Hidatsa earthlodge village where two palisaded, log-built trading posts were present, all having been built during the preceding 17 years. It may be that suitable timber was not overly abundant and that the Arikara, building hurriedly, made shift with what could be most easily obtained, even though lack of uniformity in posts resulted in lack of alinement in the house members. Nine years later, in 1871, wood was so scarce in the vicinity that we find the traders at Fort Berthold buying an earthlodge and wrecking it for wood (Van Ostrand, 1943, p. 84) and at the same time mining and hauling 18 loads of coal a distance of 17 miles. "Must have it or be cold this winter," wrote a clerk in his diary (ibid., p. 87).

The limited amount of excavation carried out at the Star Village site in 1951 adds one more link to the chain of sites and data reaching from the documented present into the undocumented prehistoric past of the Arikara. A portion of the last village site of this tribe has been explored, and it is understood that a study of the data obtained is now underway. A certain amount of work has been done at the Leavenworth site and associated cemeteries, and some part of this work has been reported.[4] The first of these sites is, with Star Village, now beneath the waters of the Garrison Reservoir; the last will soon be lost beneath the surface of the Oahe Reservoir. One important site, one which links the three, that at Fort Clark, still awaits investigation and at the present is not endangered by the projects which are rapidly changing the Missouri River into a series of man-made lakes. Undocumented sites of the early White contact period have received considerable attention in the Oahe Reservoir, and the report of the work at the Dodd and Phillips Ranch sites has already been published. More work is in progress, and when the Fort Clark site is eventually excavated, it will make available a continuous body of data on the cultural history of the Arikara unsurpassed by that of any other Plains tribe.

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[4] Work was resumed at the Leavenworth site in the summer of 1960 by a University of Nebraska field party under an agreement with the National Park Service. Two more seasons of investigations are planned for the site. ED.

## REFERENCES CITED

ABEL, ANNIE HELOISE, EDITOR.
1932. Chardon's journal at Fort Clark, 1834–1839. Pierre.

ANONYMOUS.
1953. The use of Indian rangeland on the Fort Berthold Reservation as affected by the Garrison Reservoir. Missouri River Basin Progress Report, March 1953, pp. 51–57.

BAVENDICK, FRANK J.
1941. Climate of North Dakota. Yearbook of Agriculture, pp. 1045–1054. Washington, D.C.

BROWN, MARK H., and FELTON, W. R.
1955. The frontier years. New York.

DENIG, EDWIN THOMPSON.
1953. Of the Crow Nation. John C. Ewers, ed. Bur. Amer. Ethnol. Bull. 151, Anthrop. Pap. No. 33.

DUNLEVY, MARION LUCILE.
1936. A comparison of the cultural manifestations of the Burkett and Gray-Wolfe sites. *In* "Chapters in Nebraska Archaeology," by E. H. Bell, vol. 1, pp. 11–145. Lincoln.

HARTLE, DONALD D.
——— The Rock Village site. Manuscript report in files of River Basin Surveys, Bur. Amer. Ethnol., and Div. Archeol., U.S. Nat. Mus.

HAXO, HENRY E.
1941. The Journal of La Verendrye, 1738–39. North Dakota Hist. Quart. vol. 8, No. 4, pp. 229–271.

HENRY, ALEXANDER, and THOMPSON, DAVID.
1897. New light on the early history of the greater Northwest. Elliott Coues, ed. 3 vols. New York.

KAPPLER. C. J.
1904. Laws and treaties. Vol. 1, Laws. Washington, D.C.

KURZ, R. F.
1937. Journal of Rudolph Friederich Kurz . . . 1846–1852. Transl. by Myrtis Jarrell. Ed. by J.N.B. Hewitt. Bur. Amer. Ethnol. Bull. 115.

LATTA, SAMUEL N.
1863. Report *in* Report of the Commissioner of Indian Affairs for the Year 1862. Washington, D.C.

LEHMER, DONALD J.
1954. Archeological investigations in the Oahe Dam area, South Dakota, 1950–51. Bur. Amer. Ethnol. Bull. 158, Riv. Bas. Surv. Pap. No. 7.

LIBBY, O. G.

1908. Typical villages of the Mandans, Arikara and Hidatsa in the Missouri Valley, North Dakota. Coll. North Dakota State Hist. Soc., vol. 2, pp. 498–508.

1920. The Arikara narrative of the campaign against the hostile Dakotas, June, 1876. Coll. North Dakota State Hist. Soc., vol. 6, 276 pp.

MATTHEWS, WASHINGTON.

1877. Ethnography and philology of the Hidatsa Indians. Miscellaneous Publ. No. 7, U.S. Geol. and Geogr. Surv. Washington, D.C.

MAXIMILIAN, *see* Wied-Neuwied, Maximilian Alexander Philipp, Prinz von.

METCALF, GEORGE.

1963. Notes on some small sites on and about Fort Berthold Indian Reservation, Garrison Reservoir, North Dakota. Bur. Amer. Ethnol. Bull. 185, Riv. Bas. Surv. Pap. No. 26.

MORGAN, LEWIS H.

1871. Some stone and bone implements of the Arickarees. 21st Ann. Rep. Regents Univ. State New York, pp. 25–46.

REID, RUSSELL.

1947–1948. Lewis and Clark in North Dakota. Bismarck.

STOUT, A. B.

1908. Field notes; files of the State Hist. Soc. of North Dakota. Bismarck.

STRONG, WILLIAM DUNCAN.

1935. An introduction to Nebraska archeology. Smithsonian Misc. Coll., vol. 93, No. 10.

1940. From history to prehistory in the northern Great Plains. Smithsonian Misc. Coll., vol. 100, pp. 353–394.

VAN OSTRAND, FERDINAND A.

1943. Diary of Ferdinand A. Van Ostrand, pt. 3. Russell Reid, ed. North Dakota Hist. Quart., vol. 10, No. 2.

WEDEL, WALDO RUDOLPH.

1936. An introduction to Pawnee archeology. Bur. Amer. Ethnol. Bull. 112.

WHEELER, OLIN D.

1904. The trail of Lewis and Clark, 1804–1904. 2 vols. New York and London.

WIED-NEUWIED, MAXIMILIAN ALEXANDER PHILIPP, PRINZ VON.

1906. Travels in the interior of North America. *In* "Early Western Travels." Reuben Gold Thwaites, ed. Vols. 22–24. Cleveland.

WILL, GEORGE F.

1924. Archeology of the Missouri Valley. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 22, pt. 6, pp. 295–344.

WILL, GEORGE F., and HECKER, THAD C.

1944. Upper Missouri River Valley aboriginal culture in North Dakota. North Dakota Hist. Quart., vol. 11, Nos. 1 and 2, pp. 5–126.

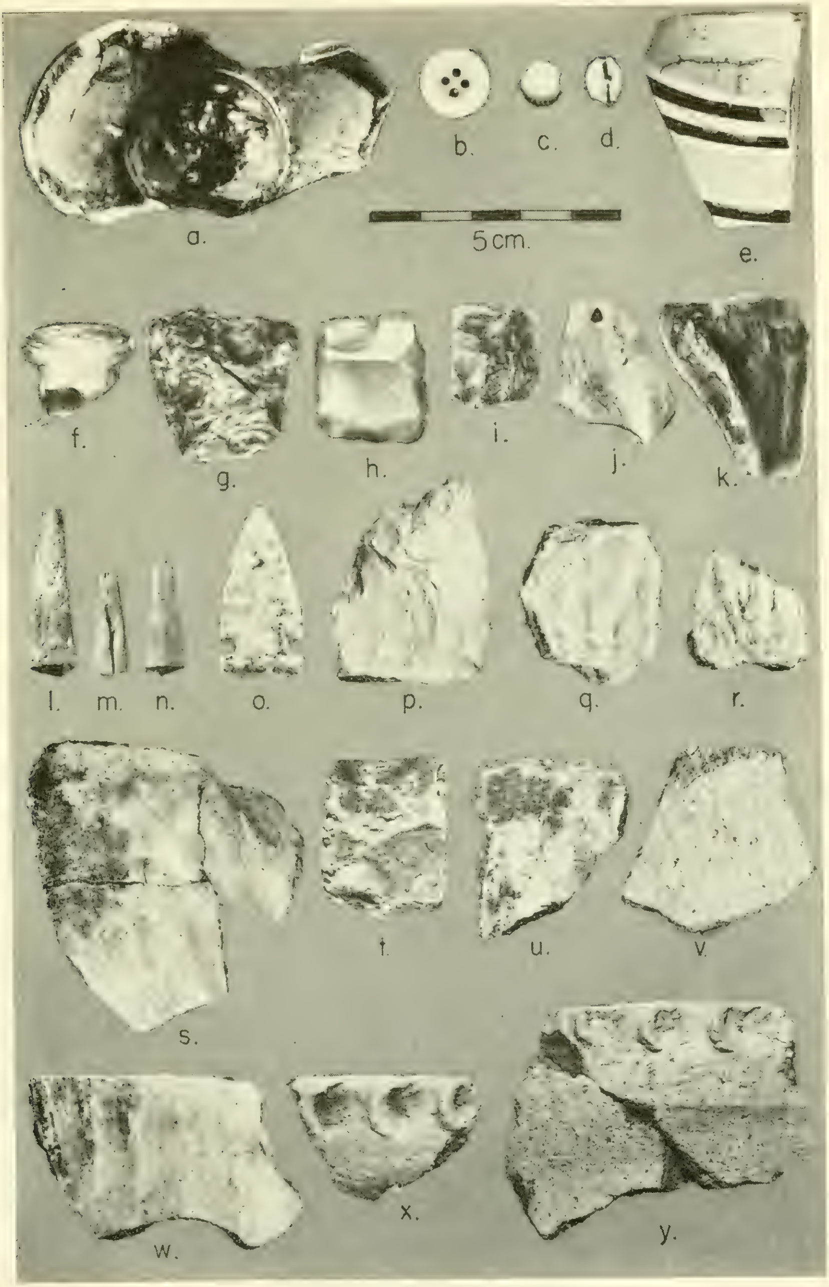
WILSON, GILBERT LIVINGSTONE.

1917. Agriculture of the Hidatsa Indians: An Indian interpretation. Univ. Minnesota Stud. Social Sci., No. 9.

1934. The Hidatsa earthlodge. Bella Weitzner, ed. Anthrop. Pap. Amer. Mus. Nat. Hist., vol. 33, pt. 5, pp. 341–420.

WOOLWORTH, ALAN R.

1956. Archeological investigations at site 32ME59 (Grandmothers Lodge). North Dakota Hist., vol. 23, No. 2, pp. 78–102.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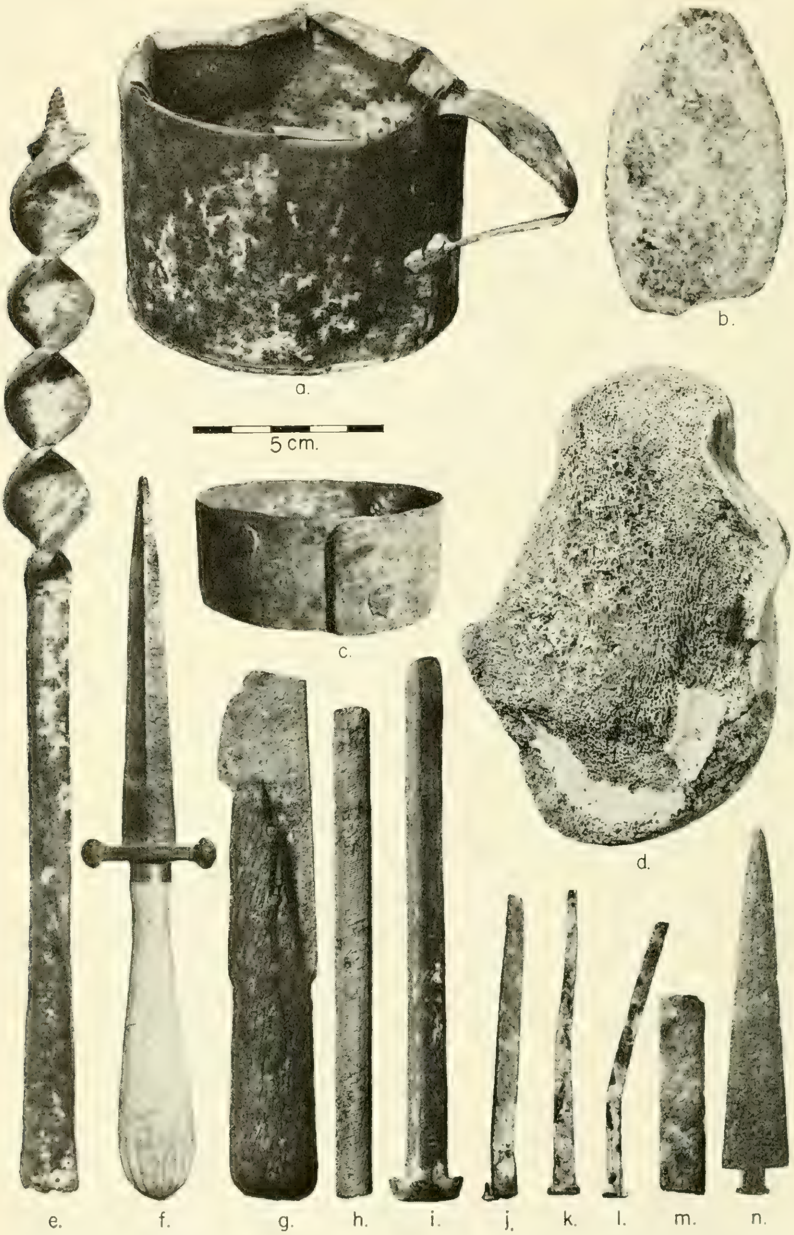
Artifacts from the Star Village site.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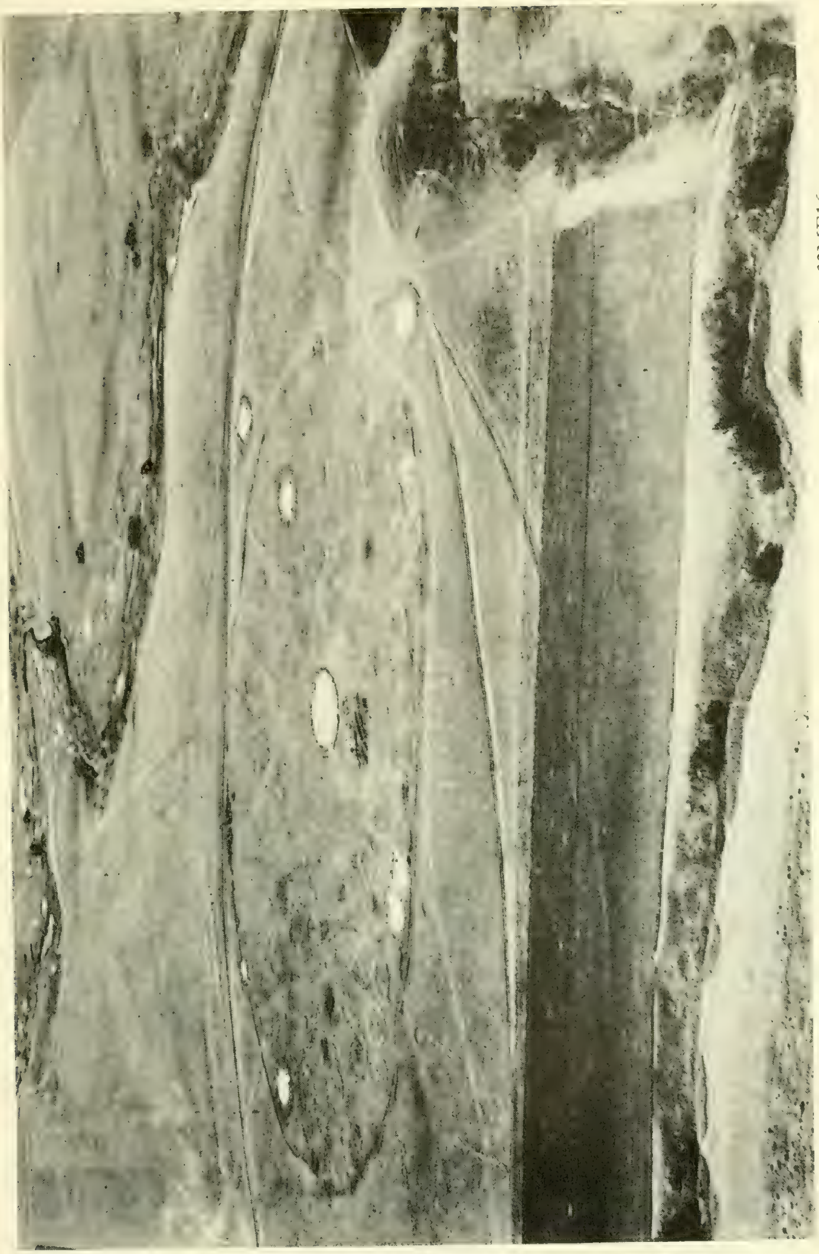
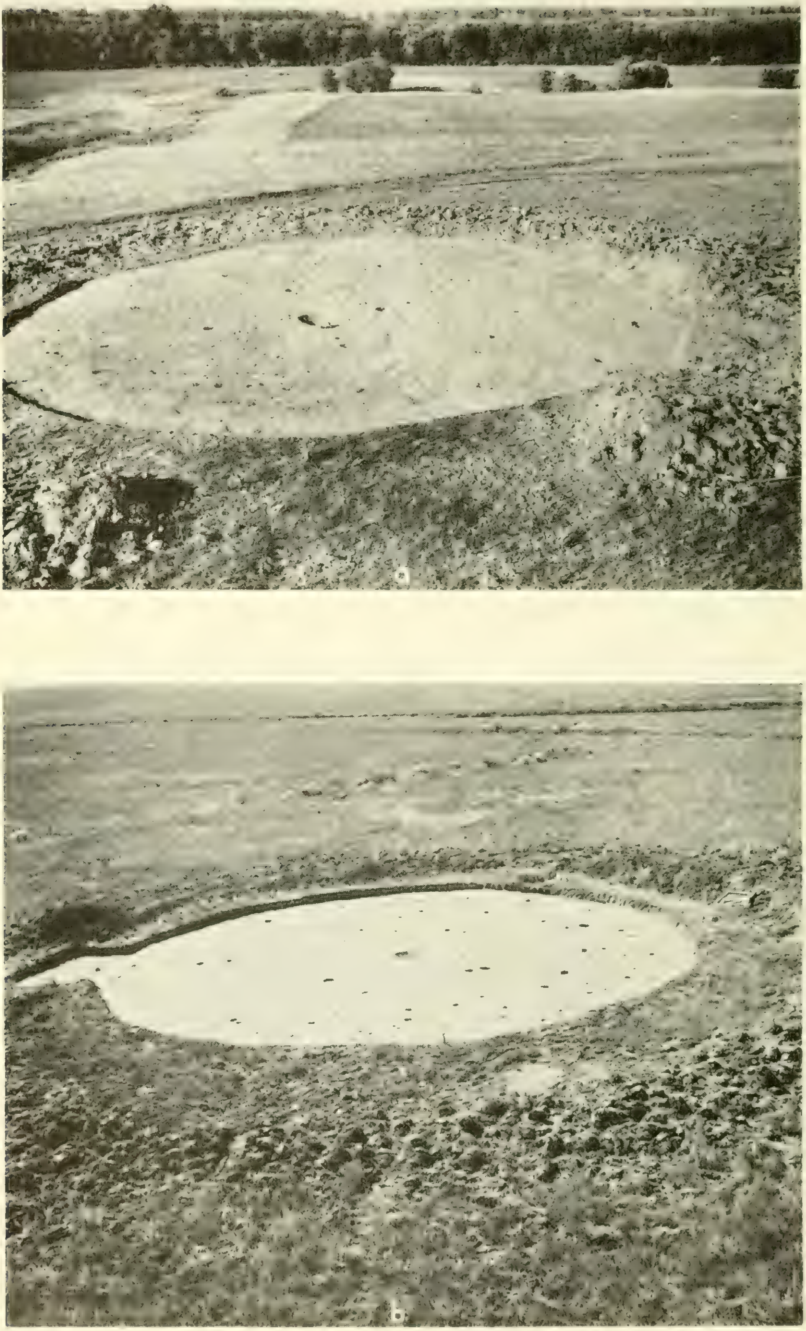
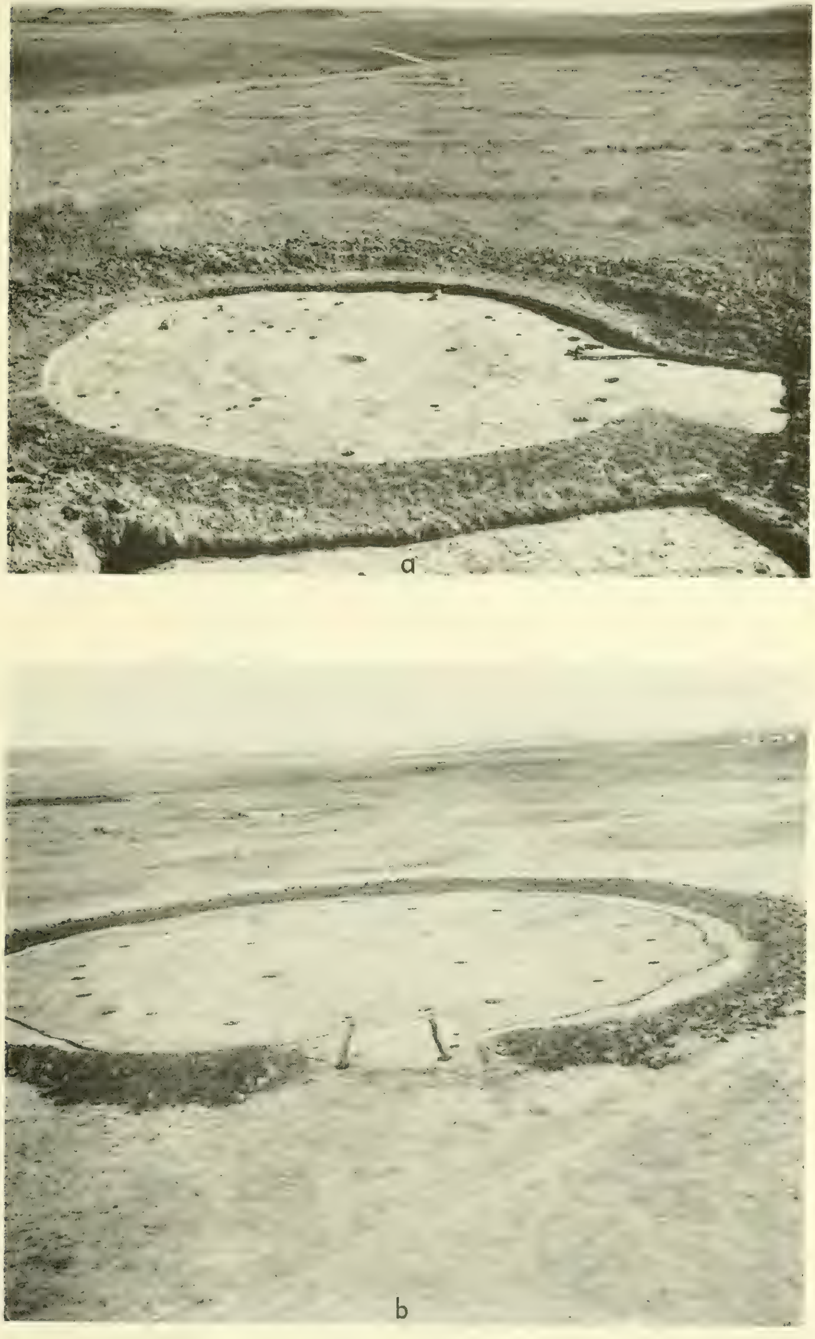
Artifacts, largely trade material, from the Star Village site.



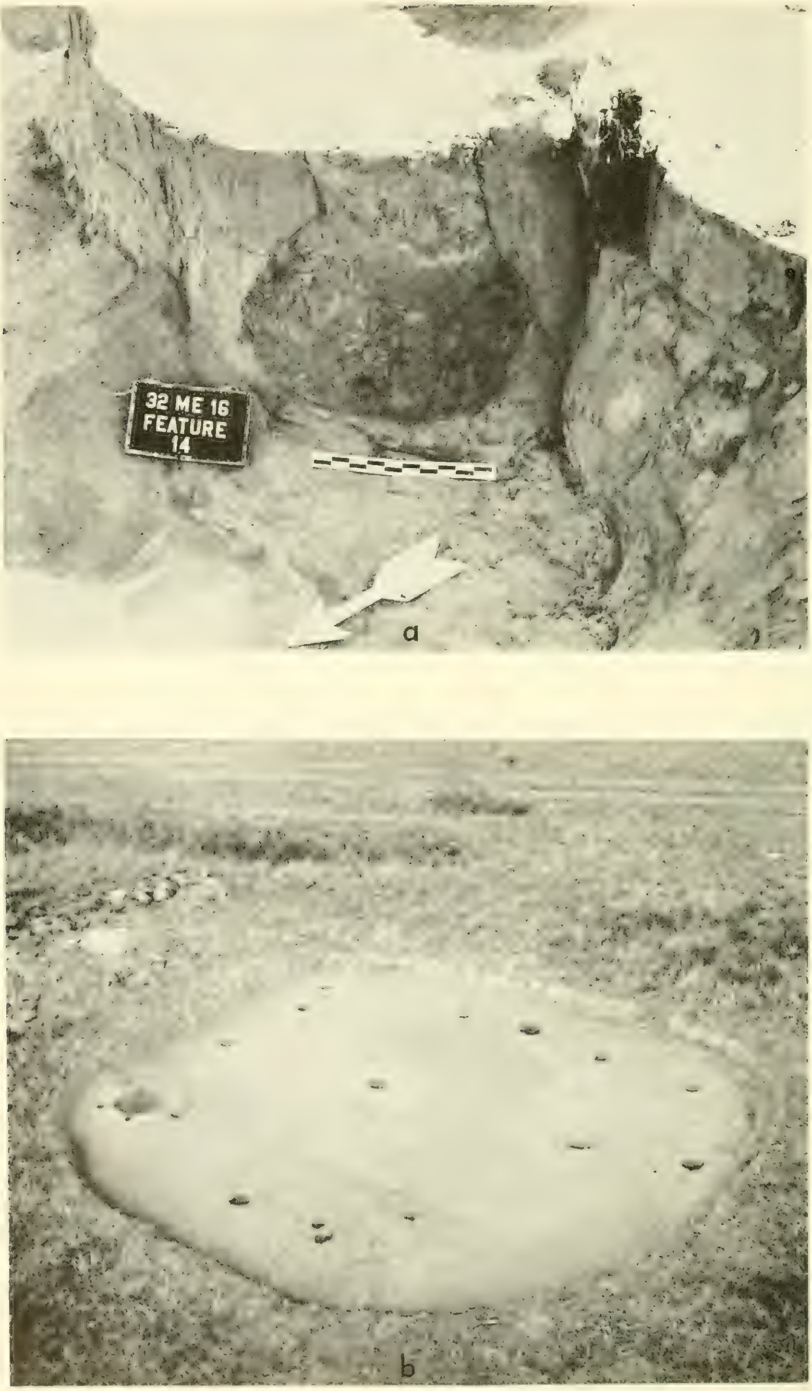
Aerial view of the Star Village site from the north, showing the 1951 excavations, 32ME16.



*a*, View, from the south, of floor of Feature 1, Star Village site, after excavation, 32ME16. *b*, View, from the northwest, of floor of Feature 3 of the Star Village site, after excavation 32ME16.



*a*, View, from the west, of floor of Feature 8 of the Star Village site, after excavation. 32ME16. *b*, View, from the east, of the floor of Feature 12 after excavation, 32ME16.



*a,* View of cross section of Feature 14, a small storage pit in the Star Village site, 32ME16.
*b,* View, from the south, of Feature 15 of the Star Village site, 32ME16.

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Bulletin 185

# River Basin Surveys Papers, No. 28

# The Dance Hall of the Santee Bottoms on the Fort Berthold Reservation, Garrison Reservoir, North Dakota

By DONALD D. HARTLE

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# THE DANCE HALL OF THE SANTEE BOTTOMS ON THE FORT BERTHOLD RESERVATION, GARRISON RESERVOIR, NORTH DAKOTA[1]

By Donald D. Hartle

## INTRODUCTION

A unique structure remaining on the Fort Berthold Indian Reservation is an old dance hall, a ceremonial building which in some respects appears to have been an outgrowth of the old Mandan and Hidatsa earthlodges (pl. 18, *a*). The dance hall (32ML41) is located in sec. 30, T. 149 N., R. 90 W., McLean County, N. Dak. Prior to cultivation, the bottom land surrounding the dance hall was covered with the typical flora of the area, mainly cottonwood and willow. In the summer of 1954, however, the immediate area was under cultivation.

George Metcalf, at that time assistant archeologist of the Smithsonian Institution Missouri Basin Project staff, now a member of the Division of Archeology, United States National Museum, recorded this site in 1950 while making a reconnaissance of the area to be inundated by the Garrison Reservoir. It was later decided that since the site was one of the many that would be flooded by the Garrison Reservoir in the near future, a complete record of the structure should be made. During the summer of 1952 the writer, archeologist of the Smithsonian Institution River Basin Surveys staff, assisted by Charles Proctor and Robert Williams, students at the University of Oklahoma, temporarily employed by the Missouri Basin Project, visited the site. This party obtained precise measurements and a description of the dance hall. Presumably the structure will be demolished and the timbers salvaged for various purposes prior to inundation.[2]

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[1] Submitted August 1954.

[2] The National Park Service in 1952 prepared reports and measured drawings of 12 historic sites to be lost by flooding in the Missouri River Basin. This was in connection with the work of the Historic American Buildings Survey. The Santee Bottoms dance hall was included in the group, the reports and measured drawings of which are on file in the Director's office in Washington, D.C.

## HISTORY

Most of the details regarding the history of the dance hall were obtained from Robert W. Rietz, Fort Berthold Agency, in correspondence with Robert L. Stephenson, Acting Chief, Missouri Basin Project. Other historical details were obtained from George Metcalf of the Missouri Basin Project and from Arthur Mandan of the Fort Berthold Reservation. The dance hall was constructed in 1918 under the direction of John Doran, one-time watchman at Elbowoods, N. Dak., who was also a local contractor in the Town of Garrison, N. Dak. Although this hall was constructed entirely of wood and was a modern building in some respects, it had many characteristics of the prehistoric and historic earthlodges excavated in the area by the Missouri Basin Project.

The Indians who built the hall were a proximity group of Mandan and Hidatsa living south and west of the Missouri River, who had broken away from a local Mandan-Hidatsa group, led by Old Dog of Elbowoods. It is generally claimed that members of all three tribes (Mandan, Hidatsa, and Arikara) were represented in the original group which was called the "Santee Dancing Society"; however, the names of participating Arikara, if any, are not known. Two Hidatsa, Bird-Lying-Down (on whose allotment the hall was constructed) and White Body, were leaders of the group. They promoted the building of the hall and, later, the formation of a separate group which developed its own hereditary positions. Opinions differ with a wide range of reasons for the split into separate groups. Some people feel that there was a political basis in which the two groups backed two different United States Senators, each of whom promised to act in their interests. Other people claim that there were "too many leaders." Rietz (personal communication) believes that the split "seems to have come about because of the distances involved and the locally developed ambitions of district leaders, following the spread of the people over an increasing area at that time."

Although the structure was called a dance hall, it served for any type of community activity and was used by any person or group of persons in that vicinity. Customarily the same "announcer" served for all affairs. Actually the announcer was a modified position of a ceremonial leader. This hall was last used in 1946, although, when visited in July 1953 by Robert L. Stephenson, it was still in good condition.

## DESCRIPTION

Briefly, the structure had 4 center posts, 13 sides, a double door, a cupola, and a flagpole (pl. 18, *a*).

*Center posts.*—The four center posts (fig. 17, *c* and *d*) were each composed of four boards nailed together and overlapping each other

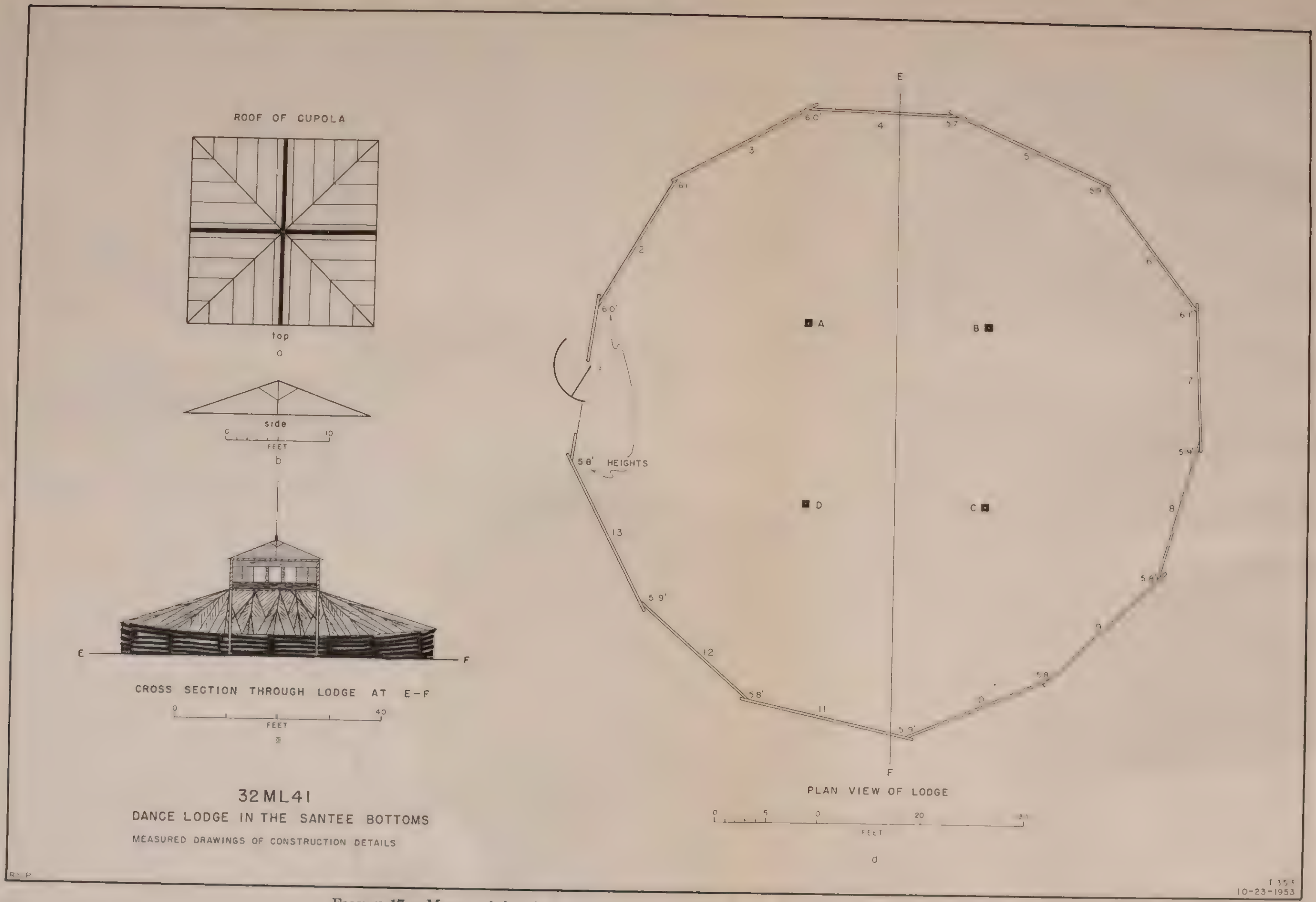
ROOF OF CUPOLA
top
a
side
0
10
FEET
b
E
F
CROSS SECTION THROUGH LODGE AT E–F
0
40
FEET
c
32ML41
DANCE LODGE IN THE SANTEE BOTTOMS
MEASURED DRAWINGS OF CONSTRUCTION DETAILS
E
6.0'
5.7'
4
3
5
6.1'
5.9'
2
6
6.0'
6.1'
A
B
7
5.8'
HEIGHTS
5.9'
D
C
8
13
5.9'
5.9'
9
5.8
12
10
5.8'
11
5.9'
F
PLAN VIEW OF LODGE
0
5
0
20
FEET
d
R. P.
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FIGURE 17.—Measured drawings of construction details of the dance hall in Santee Bottoms.

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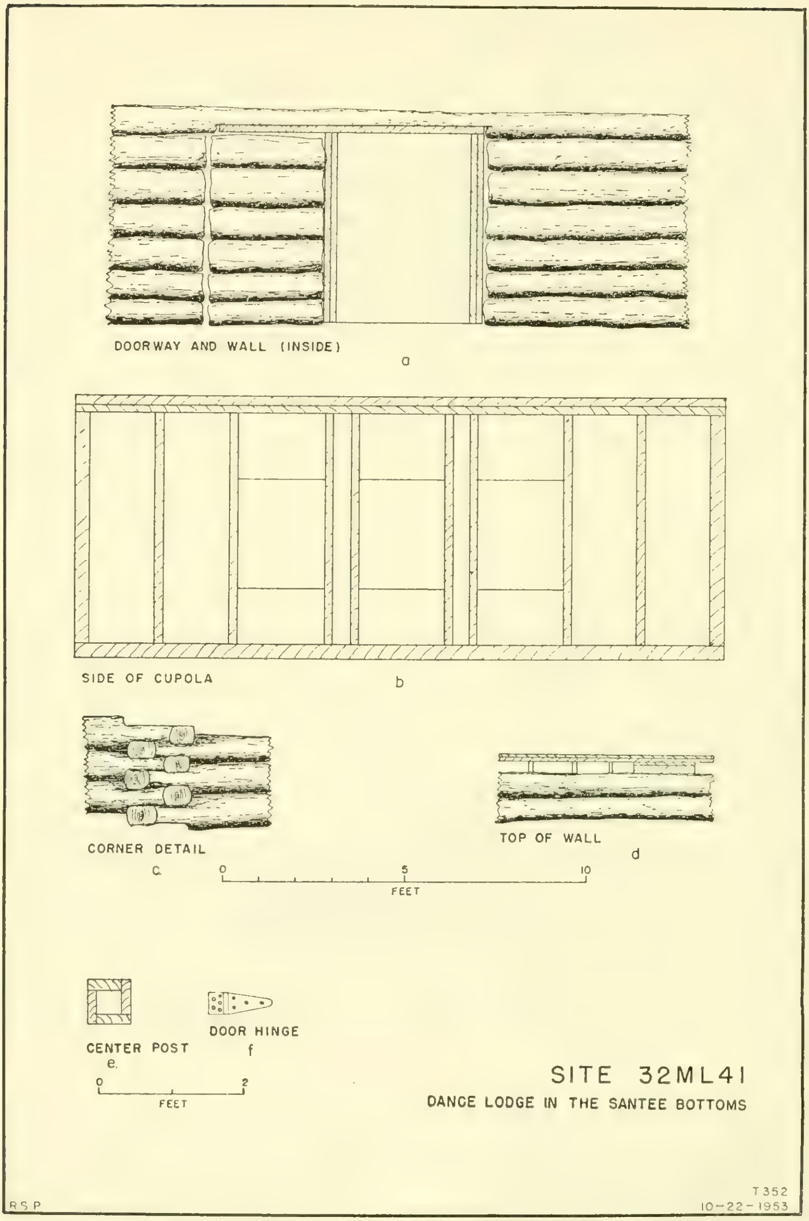

DOORWAY AND WALL (INSIDE)
a
SIDE OF CUPOLA
b
CORNER DETAIL
c
TOP OF WALL
d
0
5
10
FEET
CENTER POST
e
DOOR HINGE
f
0
2
FEET
SITE 32ML41
DANCE LODGE IN THE SANTEE BOTTOMS
R.S.P.
T352
10-22-1953

FIGURE 18.—Measured drawings of construction details of the dance hall in the Santee Bottoms.

tom width=3.75 feet, height at right side=5.2 feet, height at left side=5.15 feet. The door frame was lined with a casing of two 2 × 4's at each side and one 2 × 4 across the top. The latter extended over the log-filled portion of the door as well as over the later doorway. The door, which opened outward, was 5.65 feet in height and 3.6 feet in width. Regular large commercial iron door hinges were used to hang the door (fig. 18, *f*). A single log had been cut to conform to the contours of the door casing and was placed horizontally across the entire span of wall No. 1, including both sections of the doorway. The log-filled portion of the doorway was 5.15 feet high and 2.9 feet wide. The door sill was a log and a small 2 × 6.

*Roof.*—The roof supports (fig. 17, *c*) were 2 x 6's running from the top of each wall panel to the base of the cupola. The ends of these supports rested upon horizontally placed 4 × 4's at the base of the cupola, which in turn rested upon the four center posts. Inside each panel from the wall to the cupola base these supports number 6, 6, 6, 7, 6, 7, 6, 6, 8, 7, 6, 7, and 7 respectively. Some of these supports did not continue all the way to the base of the cupola but were toenailed to adjacent, larger supports which did. Above the supports, the roof boards were 1 × 6's, 1 × 8's, and 1 × 12's, laid flat. Long shingles were nailed to the topside of these roof boards.

*Cupola.*—The cupola was built in a rectangle directly above the four center posts and rested upon the above-mentioned horizontal 4 × 4's. The area of the cupola was thus the same as that encompassed by the four center posts. Each of the four center posts had two side braces just below the cupola. These braces started at 6.4 feet above the floor and extended toward the center of the cupola base. The braces were each 8.2 feet in length and were square, being 0.28 foot in width and thickness. There was a lantern holder on each of the braces making a total of eight.

The cupola itself was four-sided with three windows on each side (fig. 17, *c*). The corners of the cupola were of 4 × 4's, at the top of each of which were two horizontal 2 × 4's (fig. 18, *b*). All four sides were similar. Besides the four corner posts there were eight vertical 2 × 4's in each side. Three windows were centered in each side, each window measuring 3.0 feet in height and 2.4 feet in width; however, the windows were roughly cut into the walls and were not exact in measurement. There was a 2 × 4 sill at the base of each window to hold the sash. The distance between the center window and the two outer windows in each wall was 0.5 foot. The height of the cupola from base to eaves was 6.27 feet.

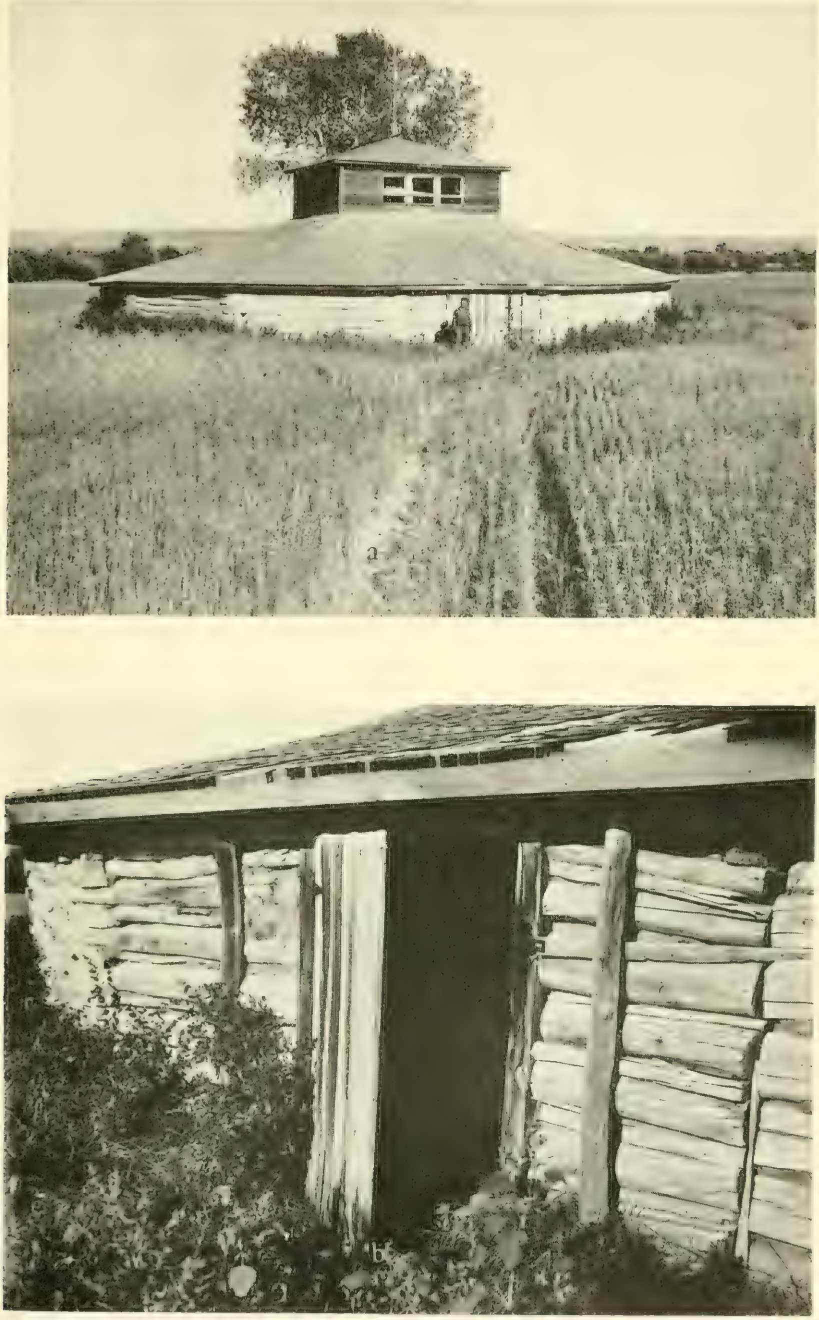
The roof of the cupola (fig. 17, *a* and *b*) was pyramidal and 3.5 feet in height at center. The roofing stringers were 2×4's with one main beam from each corner to the apex and four additional beams toenailed to them. These beams were covered with 1×8's and 1×12's, and the roof was shingled above these boards in the same manner as the lower part of the dance hall roof. Two single 1×6's formed a cross at the level of the cupola base. The height from the dance hall floor to base of the cupola (to top of the 4×4) was 12.55 feet. The height from the dance hall floor to the top of the cupola wall was 18.9 feet. The eaves of both the cupola and the main structure extended approximately 2 feet beyond the sides of the structure. A 1×6 placed horizontally, with the wide dimension vertical, is nailed along the edge of the eaves (pl. 18).

*Miscellaneous.*—Three stoves were used in the dance hall, as indicated by the presence of three flues. Two were on the south side and one on the north side. A wooden flagpole, approximately 12 feet high, extended vertically from the apex of the cupola roof (fig. 17, *c*). This flagpole was rectangular at the base, but 1.5 feet above the base the corners were trimmed, and from that point to the top the pole was octagonal. The base of the flagpole was wrapped with tin.

## GENERAL COMMENT

This dance hall was perhaps the last remaining structure of its kind in the Northern Great Plains. The historical data pertaining to it portray a small phase of the ceremonial and social life of a specific group of Indians—Mandan, Arikara, and Hidatsa—during the early 20th century. It is a very small but illuminating portion of the history of a frequently migrating people who are now in the midst of a new migration, that of moving from their present homes on the Fort Berthold Reservation. Preservation of a record of the historical background and architectural details of this structure seemed imperative.

Comparative analysis of the details of this structure, in use from 1918 to 1946, reveals similarities to the earlier ceremonial structures built by these Indians. There is even some indication of an evolutionary sequence from the early rectangular ceremonial earthlodge to the circular one and finally to the present log structure described here. One is reminded, in such a sequence, of the development of the kiva in the American Southwest. This is not meant to imply any connection between the two areas; it only points out a somewhat parallel development of a ceremonial structure as exemplified by the Santee Bottoms dance hall and its forerunners.



*a*, View of the dance hall in the Santee Bottoms. *b*, Detail of wall, roof, and door of the dance hall in the Santee Bottoms.

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## River Basin Surveys Papers, No. 29

# Crow-Flies-High (32MZ1), a Historic Hidatsa Village in the Garrison Reservoir Area, North Dakota

By CARLING MALOUF

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19. *Upper*, Bottomlands at base of terrace where Crow-Flies-High Village is located. The village was on the terrace to the right, the river to the left. View south. The community graveyard was on the bluffs in the distance. *Lower*, Cabin 1, view north.
20. *Upper*, Cabin 1, view northeast. *Lower*, Cabin 1, view northeast.
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25. *Upper*, Garden plot at confluence of Antelope Creek and Missouri River. Bear-In-The-Water, or Adlai Stevenson, an occupant of Crow-Flies-High Village during the 1880's is on the right. *Lower*, "Indian Gardens," once the largest of the garden areas cultivated by Hidatsa at Crow-Flies-High Village. The land was located about 1 mile north of the village. View here is north-northwest.
26. Crow-Flies-High. (From a photograph taken at Bismarck, Dakota Territory, 1881.)

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# CROW-FLIES-HIGH (32MZ1), A HISTORIC HIDATSA VILLAGE IN THE GARRISON RESERVOIR AREA, NORTH DAKOTA[1]

By Carling Malouf

## INTRODUCTION

Crow-Flies-High was a late 19th century Hidatsa Indian village located on the Missouri River near Newtown, N. Dak. In terms of archeology it was very recent in origin, almost modern. Yet by 1952 it was almost reduced to a legend. In that year there remained two cabin depressions and three cache pits. It had almost been obliterated after many years of plowing and cultivation during the present century. One small depression about 8 feet in diameter marked the location of a single earthlodge which had once served as the village "dance hall." The rest of its structures could not be identified. The original extent of the village, however, was indicated by numerous fragments of dishes, bottles, metal objects, pieces of leather, and broken animal bones scattered over the ground.

Published information on the site is scarce and some of it is inaccurate. From such sources it can be determined that the site was primarily Hidatsa, that it was occupied sometime during the latter part of the last century, that it is near Newtown, N. Dak., and that it was named after a chief called Crow-Flies-High.

A Corps of Engineers map, Missouri River Survey, 1891, chart No. 92, located the village on the right bank of the Missouri River, about 2½ miles above the mouth of the Little Knife River. Eleven rectangular structures were outlined. Maps of the Missouri River Commission, in 1894 (sheet LVI) noted the village in the same place. At the present time its remains are in sec. 5, T. 153 N., R. 93 W., and beneath the waters of Garrison Dam Reservoir.

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[1] Submitted December 1956. The party which excavated this site in 1952 was directed by Carling Malouf. It was financed through a contract between the National Park Service, Region Two Office, Omaha, Nebr., and Montana State University, represented by Dr. Carl McFarland, President. Valuable assistance was given by personnel in the Missouri River Project, River Basin Surveys, Smithsonian Institution, through Ralph D. Brown, its Director. His successor, Robert L. Stephenson, has kindly provided the writer with additional information and artifacts from the site. Members of the Montana State University party included Carling Malouf, John Garrett, who acted as Field Supervisor, Roy Shipley, Richard Cannon, Margaret Wetzteon, DeVona LeMieux, Maynard Dahl, and Lewis Napton.

Crawford (1931) devoted a few brief lines to the site in his "History of North Dakota":

> 77 Crow Flies High. On west side of the Missouri opposite and one mile north of the Little Knife River. The village was made up of log buildings and is near the John Goodall ranch.

One other remark which Crawford makes regarding the Indians who occupied Crow-Flies-High Village was as follows (ibid., p. 535):

> 79 Yellowstone River site near Buford. Occupied by Crow Flies High's band in the '70s.

Crawford made no effort to explain these two notations in his history, but they are merely presented as isolated facts. Informant data, however, reveal that there was a definite connection between the two villages since both were occupied seasonally by Crow-Flies-High's band.

Will and Hecker also published a brief note on the site, but it has proved to be somewhat less accurate than that of Crawford. Will and Hecker (1944, p. 116) wrote thus:

> The Crow Flies High Village (Hidatsa), across the river from Sanish, North Dakota. This is one of the latest Hidatsa earth lodge villages and was occupied by a band of reactionary Hidatsa who objected to being confined to the Reservation.

While earlier reports mention "dwellings" or "log buildings," that of Will and Hecker now listed it as an earthlodge village.

In 1947 a Smithsonian Institution, River Basin Surveys party, under Marvin F. Kivett, examined the site and furnished the first specific information on its archeological potential. They noted that several cache pits were visible in the uncultivated area next to the river bluff. Shallow depressions in the cultivated sections were thought to "probably indicate earth lodges." [2] Kivett also noted that broken glass, leather pieces, metal objects, broken stones, bone ash, and other items were scattered over an area about one-quarter mile long. The field notes of the River Basin Surveys party (Kivett, 1948, p. 10) revealed:

> The greater part of the area has been under cultivation for a number of years, but considerable evidence remains, particularly in the sodded areas near the northeast edge of the village. In this section are several small circular depressions, one of which was excavated. This was found to be an abandoned storage pit which had been filled with ashes, metal plates, files, and similar items of white manufacture. Tests in the cultivated sections of the site revealed extensive areas of charcoal and burnt earth which may indicate the remains of earthlodges.

Finally, Waldo Wedel (1948, p. 23) referred to Crow-Flies-High Village in a published account:

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[2] Smithsonian Institution, River Basin Surveys, field sheet, Site 32 MZ1, dated 7/29/47, recorded by Kivett, with additional notes by George Metcalf, 1/3/51. It is possible that Kivett was influenced by Will and Hecker's report in expressing this opinion of earthlodges.

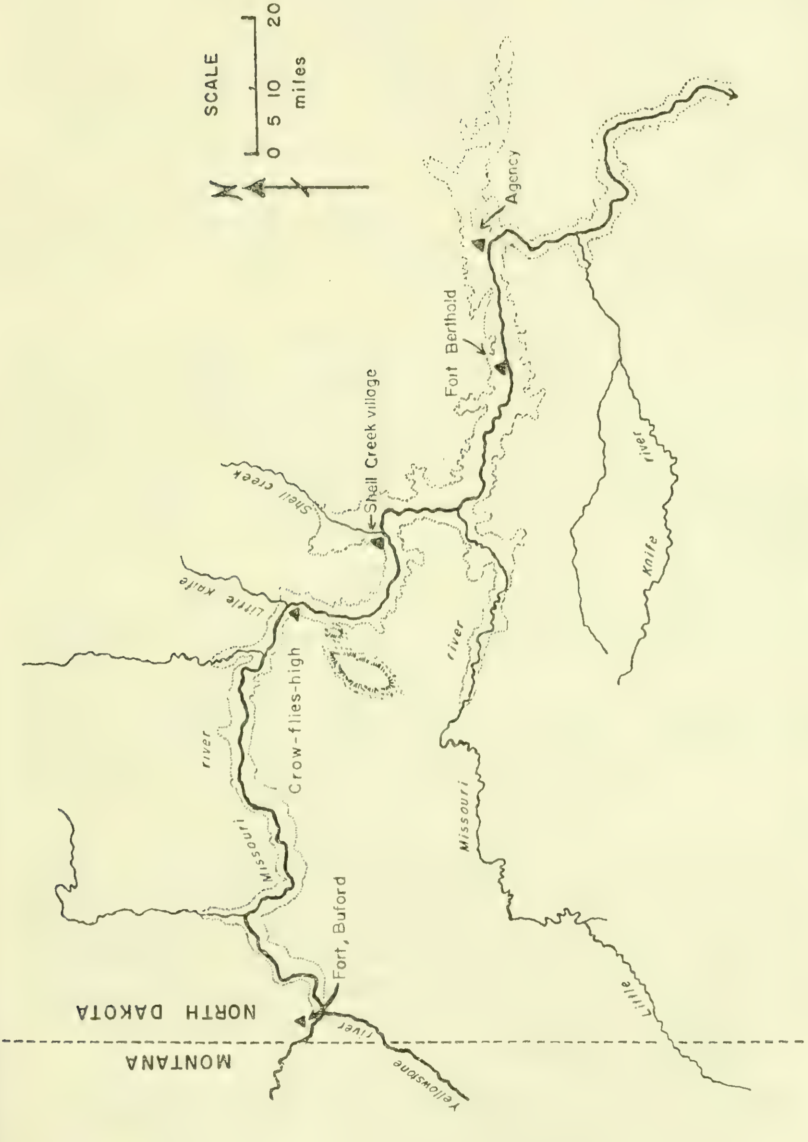
N
SCALE
0 5 10 20
miles
Agency
Fort Berthold
Shell Creek village
Shell creek
Little Knife
Crow-flies-high
Missouri
river
Missouri
river
Knife
river
Little
Fort, Buford
Yellowstone
river
NORTH DAKOTA
MONTANA

FIGURE 19.—Territory in northwest North Dakota occupied by Crow-Flies-High band of Hidatsa. Dotted line along the Missouri River indicates area inundated by Garrison Dam.

> Of more recent date is another earth-lodge village (32MZ1), opposite the mouth of the Little Knife River. Known as Crow Flies High village, it is believed to have been occupied between 1868 and 1893 by the Hidatsa. Metal, glass, and other recent materials were plentiful, but there was little of native origin.

On the basis of the preliminary River Basin Survey reports, and of Will and Hecker's publication, the party directed by the writer expected to excavate a village of earthlodges. It was soon determined, however, that only one such structure was ever made in the village, and the Hidatsa occupied cabins when they dwelt at Crow-Flies-High.

Except for reports on Crow-Flies-High's band by the Commissioner of Indian Affairs, to be cited later, this was all the published information available on the site and its occupants. The several reports of the Commissioner between 1876 and 1900 mentioned the band under the leadership of Crow-Flies-High, but no description of their village was offered.

Local lore was virtually absent on Crow-Flies-High Village. The nearby town of Sanish (established in 1916 and abandoned in 1952) and Newtown (established in 1951) were constructed long after the Indian village was last occupied. Most White people in the area were not aware that there had been a community of Indians in that vicinity. Even the farmer plowing the land at the site did not notice that he was moving over an old Hidatsa village. He had not even observed the broken glass and metal pieces on the ground.

A few persons who had arrived in the vicinity before the founding of Sanish, and the grandchildren of John Goodall, the original homesteader of the section on which the site is located, were aware of the former existence of the village. A few local amateurs had excavated portions of the site in search of relics, and one of these men reported finding corn in "crockery jars." Others had looted the village graveyard situated on the bluffs opposite from Sanish and above the native village.

Hidatsa informants were still available who had actually lived in Crow-Flies-High Village, and many details were furnished by them on the history and social life of the band. The site was examined by two of these men, and data were obtained on the location and ownership of fishtraps, cornfields, cabin arrangements, and even the clan affiliation of their occupants. The ethnological data will be discussed in a later section of this report.

## EXCAVATIONS AT CROW-FLIES-HIGH VILLAGE

The site of Crow-Flies-High Village was located on a broad terrace west of the Missouri River which in this vicinity flowed from north to south, and it was about 35 feet above the water level. The flats between the base of the terrace and river were treeless, but there were swampy sections at the base of the terrace where water seeped through.

The flow, however, was too small for domestic use, but brush and grass grew around the bogs. Drinking and culinary water was obtained from the Missouri River itself. A stream of clear water, Antelope Creek, flowed toward the east about one-half mile south of the village.

At the time Crow-Flies-High Village was occupied, the Missouri River flowed along a slightly different course than it did in 1952. What in later times was a lesser channel across the river from the site was once its main course. Before the river bottoms were inundated by Garrison Dam the main stream was rapidly eroding into the broad, low benchland and was a little closer to the site than it was formerly.

Evidently the location of the village had been a favorite occupation ground in prehistoric times. A few chips of "Knife River flint," and some lithic specimens of the same material were picked up on the surface of the ground, and one or two pieces came from screening the earth around a more recent cabin site. No pottery from either the prehistoric level, or the historical Hidatsa was found here. The Hidatsa had by this time discontinued pottery making. Bear-In-The-Water, or Adlai Stevenson, remembered that his grandmother had made it out of "gumbo clay," rolled into balls. Children carried the clay balls from its source to the camp. Stones were collected, usually those which had been partially decomposed in fires in sweathouses, and

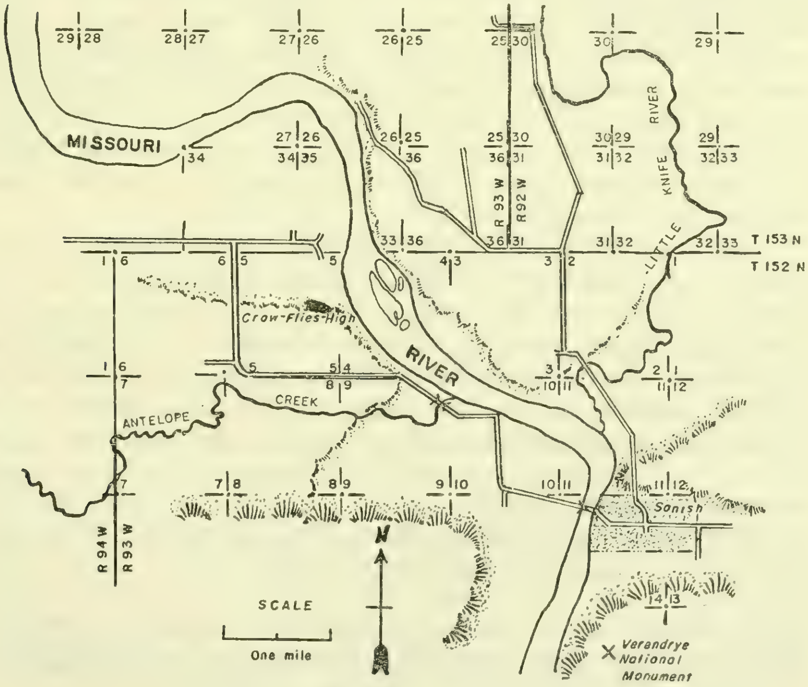
29|28
28|27
27|26
26|25
25|30
30
29
MISSOURI
27|26
34|35
34
26|25
36
25|30
36|31
30|29
31|32
29
32|33
RIVER
KNIFE
LITTLE
R 93 W
R 92 W
33|36
4|3
36|31
3|2
31|32
32|33
T 153 N
T 152 N
1|6
6|5
5
1
Crow-Flies-High
RIVER
1|6
7
5
5|4
8|9
3
10|11
2|1
11|12
CREEK
ANTELOPE
7
7|8
8|9
9|10
10|11
11|12
Sanish
R 94 W
R 93 W
N
SCALE
One mile
14|13
Verendrye National Monument

Figure 20.—Location of Crow-Flies-High Village.

were pounded into a sandy composition. The vessels were fired in charcoal, completely covered. Designs, it was added, were incised.

Most of the site has been plowed at least 50 times since John Goodall first homesteaded it in 1886. A small strip of land on the edge of the terrace from 5 to 25 feet in width remained unbroken by plows. Cabins found here were about 1 foot under the surface of the ground; those in the field had been destroyed.

Before excavation commenced it appeared that there were two cabins and four cache pits still remaining on the unplowed portion of the village. Nearly halfway down the terrace, about 100 yards to the north of the terrace edge, there were traces of what appeared to have been two more cabin outlines. On the benchland below the terraces, still farther to the north, was the distinct outline of another cabin and two more cache pits. All the remains on the terrace slope and in the bottomlands proved to be the works of early ranchers in the vicinity and not that of the Indians. Only the cabin outlines and the cache pits on the terrace proper proved to have been a part of the Hidatsa village.

*Cabin 1.*—Cabin 1 was originally an irregular depression in the ground about 3 feet in depth. Rusty cans and broken pieces of glass and chinaware were scattered around on the ground in the vicinity of this outline. After the vegetation in the pit was cleared away, trowels were used to explore the debris. Glass bottles, broken dishes, a kitchen knife, fork, spoon, harmonica, padlock and key, a toy cap pistol, cartridge shells, a pocket knife, railroad spikes,[3] and numerous other items were found here. A few broken animal bones, a bone artifact, and glass beads reminded us that this was, after all, an Indian site. The specimens were most numerous where charcoal was concentrated, and near the apparent edge of the cabin. Most of the artifacts found at the site came from cabin 1.

Despite careful troweling and shoveling, nothing definite could be found which would show the former size and shape of the cabin. Portions of a floor were discerned, but most of it had been seriously disturbed in recent years by amateur collectors. It is possible also that some of the confusion in the soil around the cabin was caused by native reconstruction. Informants mentioned that several of the cabins were rebuilt and occupied by persons other than the original owner. Our Hidatsa informant, Adlai Stevenson, was not certain who had occupied this cabin, but he thought that it might have belonged to one of Black Hawk's wives, Different Cherries, or that possibly it might have belonged to Bull Head.

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[3] An Indian agent in 1888 mentioned the completion of the Saint Paul, Minneapolis and Manitoba Railway between the reservation and Minot, N. Dak. See Abram J. Gifford (communication in), Report of the Commissioner of Indian Affairs for 1888, p. 44, Washington, D.C.

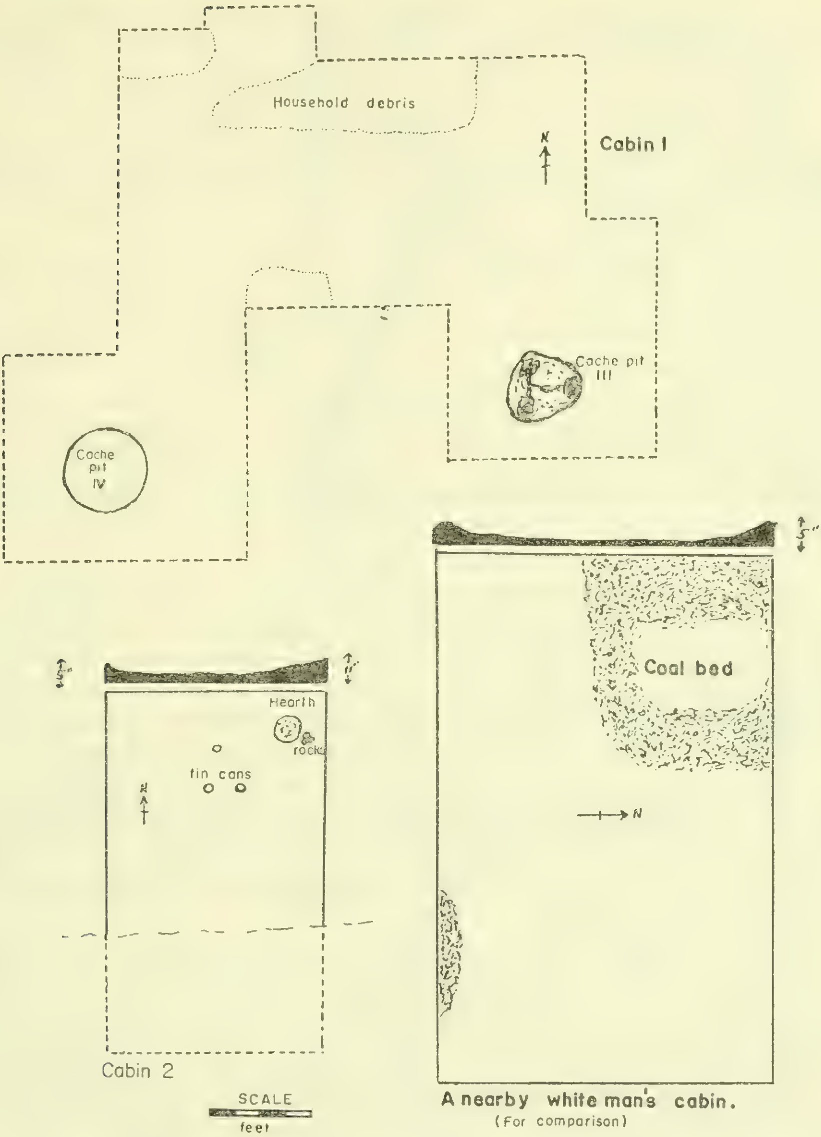
Household debris
N
Cabin I
Cache pit III
Cache pit IV
5"
5"
5"
Hearth
rock
tin cans
N
Coal bed
N
Cabin 2
SCALE
feet
A nearby white man's cabin.
(For comparison)

Figure 21.—Floor plans of cabins and excavations at Crow-Flies-High Village.

Outside the cabin there were two shallow, basin-shaped cache pits. Evidently they had been placed immediately alongside the walls of the cabin. These were about 2 feet in depth and from 2 to 3 feet in diameter. One had been outside the southeast corner of the cabin and extended down 1 foot below the floor level of the cabin. It was noted as a fire-blackened area containing a mixture of charcoal and ash in varying proportions. The heaviest concentrations of this blackened earth were in three connected centers with bands of lighter earth passing between them. There is no evidence, however, to show that this arrangement was anything other than accidental.

Another pit about 3 feet in diameter and extending 1 foot below the floor level was filled with fire-blackened earth. Apparently it had been dug inside the northeast corner of the cabin. Five cartridge shells manufactured sometime during the 1880's, a lead bullet, a piece of tin, and some pieces of glass were found in the pit.

*Cabin 2.*—Almost the entire outline of cabin 2 was excavated to its floor level. A very small portion of the surface layer was left undisturbed along the south wall in order to illustrate the original depression line in relationship to the buried floor level. A rock was found in the west end of the cabin, and in the east end there were three more stones together with two smaller cobblestones. A simple fire hearth was exposed near the rock pile and in a corner of the cabin. Three tin cans in a poor state of preservation were found at various places on the floor. The cabin itself was originally rectangular in outline with a slightly concave floor.

*Cache pit 1.*—Unexcavated, cache pit 1 was a circular depression in the ground about 5 feet in diameter. After excavation it proved to be a bell-shaped, flat-bottomed cache pit about 6 feet in depth. Its walls were very well defined, but they had a tendency to collapse easily, as it had been dug through a deep sand layer. No evidence of reinforcing wood, willows, or clay was noticed along its walls.

The top of the cache pit was saucer-shaped and about 1 foot deep. At the bottom of the saucer was an opening to the bell-shaped cist below. At this constricted part of the pit the diameter was 4 feet 3 inches. Below this neck the pit enlarged until it reached an additional 4½ feet in depth.

In the top layers of the cache pit there were tin cans, several nails, and some buttons. In the neck there were parts of burned sticks which had once formed a sort of lid or seal from the pit below. Small logs had been laid across each other at this constricted part of the cache, and above these had been placed brush, earth, and rocks. Below the lid was the skeleton of a large calf, complete and unbutchered. A heavy layer of larvae shells ranging from 2 to 4 inches thick extended above and within the carcass of the calf. Maggots had had an opportunity to feast on the animal after it had been placed in the pit. The position of the bones, being disarticulated by collapsing and not from the pressure of earth around the skeleton, indicates that it took several years for the pit to fill with earth once it was abandoned. A heavy green canvas had been wrapped around the animal before it had been deposited in the cache pit. Underneath the canvas there

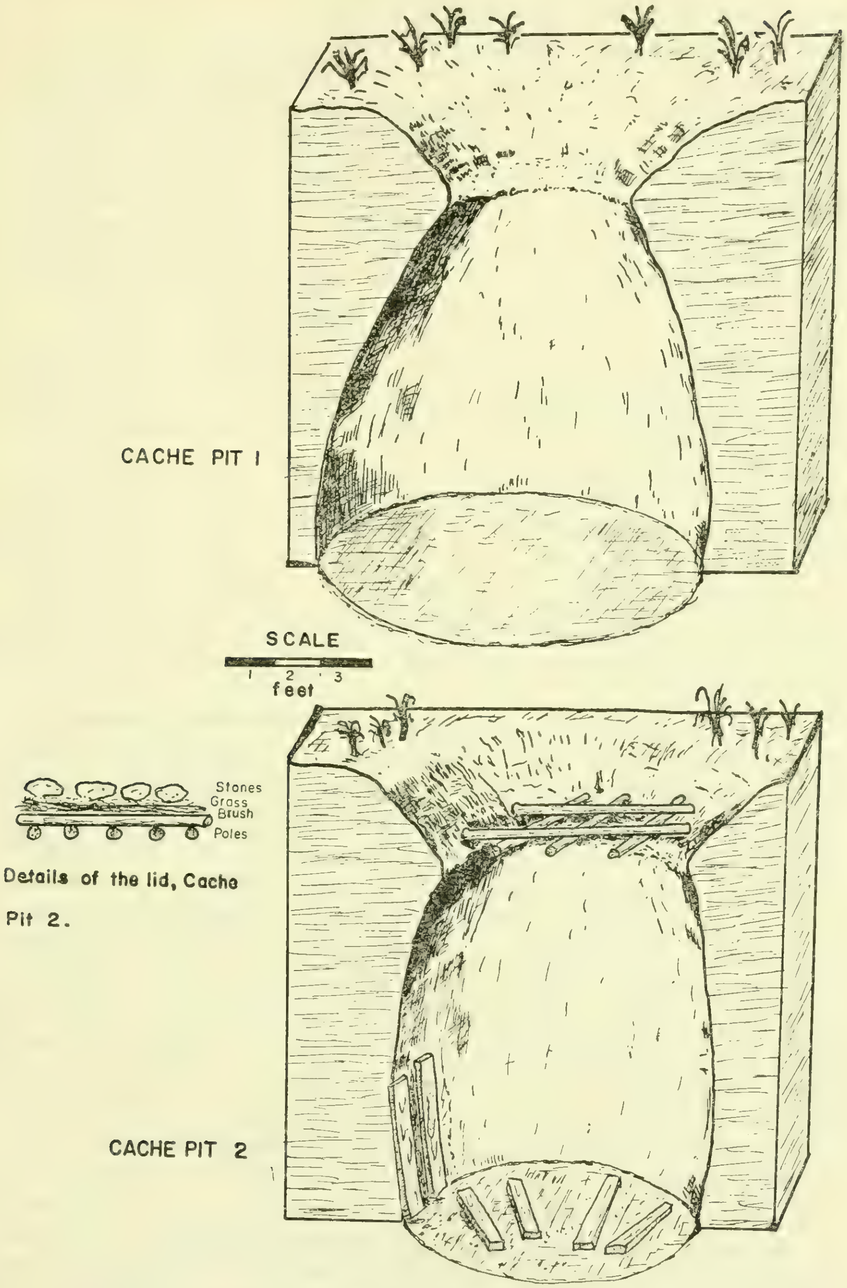
CACHE PIT 1
SCALE
1
2
3
feet
Stones
Grass
Brush
Poles
Details of the lid, Cache Pit 2.
CACHE PIT 2

FIGURE 22.—Cross sections of cache pits 1 and 2. Crow-Flies-High Village.

were traces of bark and wood, and beneath these were the ribs of a smaller animal, possibly a deer or antelope.[4]

*Cache pit 2.*—Before excavation cache pit 2 was indicated by a 3-foot-wide depression in the ground. Excavation proved that it was a full-sized cache pit. The constricted portion or neck was located approximately one-half the distance between the present level of the ground and the bottom of the pit. A cover had been placed in the neck, and here pieces of charred wood were found. An extensive fire here had reddened the earth with its heat, and in some places the high temperatures had burned it to an orange color. At the bottom of the pit there was a skeleton of a partially dismembered calf.

Like cache pit 1, this one was widened at the bottom and had a flat floor. The bottom had been planked with boards which were laid on the ground and then covered with bark. Several pieces of rotten wood were found intact on the floor.

*Cache pit 3.*—This cache pit was recognized before excavation as a depression in the ground. It was almost the same size as cache pits 1 and 2 before they were excavated; hence, another large pit was anticipated. Excavation, however, revealed that it was a shallow-type pit, basin-shaped, and about 3 feet in depth. Several bone fragments and small stones were found in the debris near the top of the pit.

*Cache pit 4.*—A circular depression in the ground, detached from the southeast corner of cabin 1, was designated as cache pit 4. After excavation it proved to be a shallow, basin-type storage pit. The pit itself was on a lower ground level than the floor level of the cabin, and it may have been slightly older. It was about 3 feet in depth.

Several broken animal bones and one broken projectile point, as well as many tiny blue, white, and red glass beads, were found in cache pit 4. In addition, several metal objects, tin cans, and some doll legs were found in the pit. The single projectile point in the midst of such recent material must have come from an older occupational level through which the pit had been dug. It appears, moreover, that the cache pit was filled with debris before the village was abandoned.

The few cabins and pits described here were all that could be located in an undisturbed condition. They certainly represented a very small portion of a community which once consisted of at least 30 structures. It was possible to map more of the village on the theory that the greatest concentration of cultural debris would lie around old dwellings. Thus, wherever pieces of old leather, nails, dishes,

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[4] During the excavations an elderly Indian woman who had lived in the village as a little girl asked us to return a colored, beaded blanket that had been placed in a cache pit many years ago. She was not certain where the pit was located but assumed we might find it during our excavations.

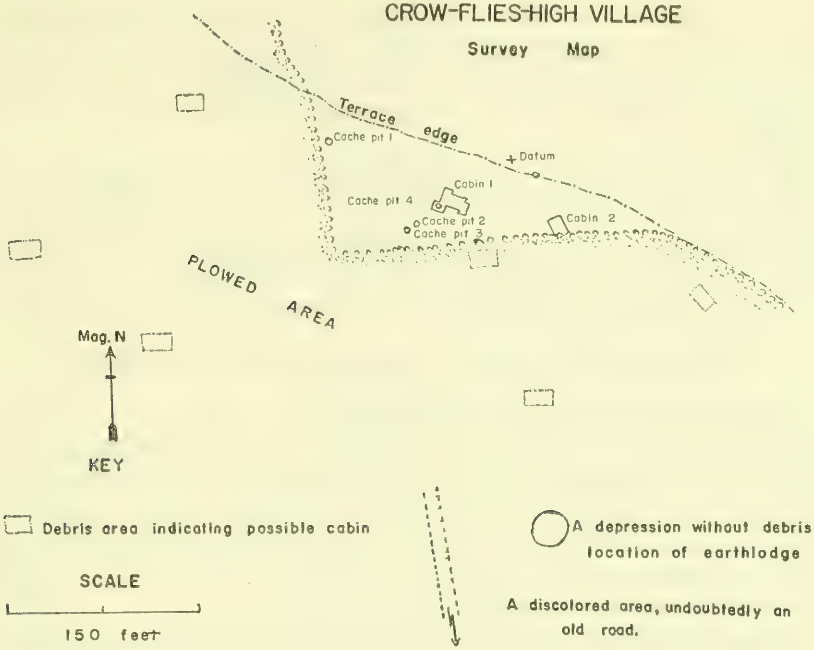
CROW-FLIES-HIGH VILLAGE
Survey Map
Terrace edge
Cache pit 1
Datum
Cabin 1
Cache pit 4
Cache pit 2
Cache pit 3
Cabin 2
PLOWED AREA
Mag. N
KEY
Debris area indicating possible cabin
A depression without debris location of earthlodge
SCALE
150 feet
A discolored area, undoubtedly an old road.

FIGURE 23.—Crow-Flies-High Village plan as determined by archeological studies.

etc., appeared to be more numerous, it was assumed that a cabin was once situated on that spot. Then its location was plotted on a map. By this method several more probable cabin sites were mapped and the general plan of the community was revealed. A large circular depression in the cultivated area of the site was almost certainly an earthlodge location. Testing showed ashes beneath the soil, but it had been so badly disturbed that excavation was regarded as fruitless.

From the archeological evidences alone a few conclusions may be listed. Crow-Flies-High Village was located on a terrace about 35 feet above the Missouri River and was roughly rectangular in shape, oriented east and west. There was a tendency for more structures to be concentrated on the east end while the south side was completely open. A plaza was left open in the middle of the rectangle. The occupants preferred to live in rectangular shaped cabins with earthen floors. Fire hearths, and sometimes stoves were used for heating the cabin or for cooking, and they were usually placed in or near a corner of the room. Storage pits of two kinds were maintained for storage of foods. One was about 6 feet deep in the earth, usually outside the dwelling. In form it was nearly identical with traditional cists in earthlodge villages. The other type was shallow and basin-shaped, extending about 3 to 4 feet in the ground. The inhabitants used mainly manufactured goods from American traders rather than items of native manufacture. Pottery was not used in the village, but wagons and harnesses, tobacco, dishes, implements, weapons, toys, and many items of prepared foods were in considerable demand. The period of occupation was heaviest during the middle 1880's.

Very little evidence of economic activities was revealed in the archeological studies at Crow-Flies-High. Traces of hunting activities were evidenced by the presence of animal bones. The remains, of course, showed numerous contacts with Whites, but the nature of this contact could not be determined through archeology alone.

## CROW-FLIES-HIGH VILLAGE ETHNOGRAPHY

Archeology alone left a very unsatisfactory picture of life in Crow-Flies-High Village. When informants added data, however, the archeological fragments were brought together in a vivid picture of a living community. The information revealed may be used to explain the behavior of natives who occupied Hidatsa and Crow villages centuries earlier. These are matters, however, which will be discussed in the conclusions of this paper.

After archeological excavations were completed, a few aged Hidatsa informants were brought to the site. One of these, Adlai Stevenson,[5] drew his own sketch map of the village. When it was compared with our survey map, the similarities were very gratifying to us. The large depression near the southeast side of the village was identified as the remains of the only earthlodge in the community. Our suspicions were confirmed by the informant. The two maps also agreed in the absence of cabins on the south side of the plaza.

The excavation of cabin 2 showed that it was rectangular. The informant drew all his cabins with this shape, but admitted when questioned that some of them were square. The cabins were arranged around a sort of plaza which was generally oriented east and west.

Informants denied that stoves were used inside the cabins, but they described fireplaces built in a corner of the room. Smoke and fumes passed through an open chimney in the roof. Kettles were hung over the fire by means of a chain suspended from the roof or from the top of the fireplace. In earlier times, it was said, the Hidatsa preferred to have their doorways facing toward the south, but by the time Crow-Flies-High Village was occupied this custom had been abandoned. Platforms or corn racks were built outside of the cabins,

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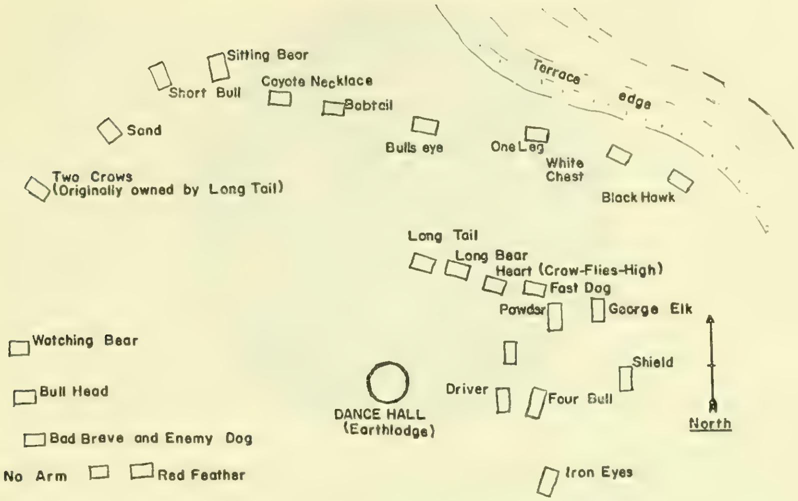
[5] This informant, born in 1866 at Fort Berthold, was originally named Bear-In-The-Water. He was renamed Adlai Stevenson during the 1890's after he aided the U.S. Marshal in apprehending cattle thieves and outlaws in the region. He was named after Adlai Stevenson, who at that time was Vice President of the United States.


Sitting Bear
Short Bull
Coyote Necklace
Bobtail
Terrace edge
Sand
Bulls eye
One Leg
White Chest
Black Hawk
Two Crows (Originally owned by Long Tail)
Long Tail
Long Bear
Heart (Crow-Flies-High)
Fast Dog
Powder
George Elk
Watching Bear
Shield
Bull Head
Driver
Four Bull
DANCE HALL (Earthlodge)
North
Bad Brave and Enemy Dog
No Arm
Red Feather
Iron Eyes

VILLAGE OF CROW-FLIES-HIGH

According to Adlai Stevenson

FIGURE 24.—Village of Crow-Flies-High according to a Hidatsa occupant, and informant, Adlai Stevenson, or Bear-In-The-Water.

and here corn and meat were dried for winter use. Often people slept up there if the cabin was crowded with visitors.

The earthlodge, or "dance hall" did not have a flat roof, nor did it have a covered doorway. According to Wilson's (1934, p. 364) classification it was a "simple type" structure.[6] The doorway was flush with the side of the lodge without additional construction work to cover a passageway. Typically, a bull-boat frame was inverted and placed on the top of the lodge to regulate the flow of air and smoke from a large basin-type fire hearth in the center of the lodge.

Everyone in the community united in its construction, and the assignment of tasks was not made on the basis of clan or moiety membership. It was said that the Grass Dance Society members supervised. Specifically mentioned in the society were its officials, including drum owners, feather-tail owners who had special whips in their possession, and four men with drumsticks. Given a sheet of paper and a pencil, Adlai Stevenson (or Bear-In-The-Water) made a sketch of the earthlodge which is reproduced here with retouching for clarity.

Gardens were located in Missouri River bottomlands about 1 mile north of the village and in certain sections along both sides of Ante-

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[6] According to Wilson this type of earthlodge was relatively easy to make and by 1909 was the most common one on the Fort Berthold reservation.

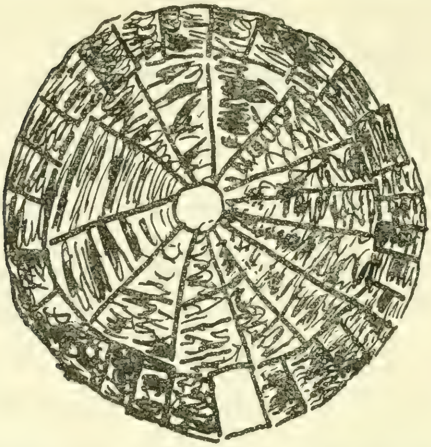

FIGURE 25.—Construction plan of the earthlodge at Crow-Flies-High Village according to a Hidatsa informant, Adlai Stevenson, or Bear-In-The-Water.

lope Creek, about one-half mile to the south. This latter stream was known to the villagers as "Self-Built-Creek." Although the fields were located at least one-half mile away from the village, the land in these places was preferred over the terrace lands where the cabins were built because the soil was softer and easier to work. Moreover, it was regarded as more productive.

Each family cultivated about one-half acre, with most of the work involved, including the clearing of the land, being done by the women. Ownership of the land was by families; clan membership did not enter into matters of tenure.

Corn was planted in hills about 1 pace apart (approximately 18 inches). Five seeds per hill was regarded as the most desirable number. Corn types included yellow, white flint or hard, yellow hard, and a type of corn with mixed kernels. Five different kinds of beans were grown—yellow, black, white, red, and spotted. Frequently corn, beans, and squash were planted together as complementary crops. Certain modern plants, such as cucumbers and wheat were lacking in the gardens, but melons and pumpkins were grown.[7]

Work in the gardens was the task of women and girls, while that of hunting and fishing was for men. One fishtrap was located about one-half mile west of the village on the bank of the Missouri River, while another was to the east. The westernmost trap was owned by Coyote Necklace, while that on a point projecting into the river east of the village was owned by Iron Eyes.

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[7] These farming data on Crow-Flies-High Village are entirely from informants. It may be compared with an earlier and more thorough work by Glibert L. Wilson (1917, pp. 58, 84). Here nine corn types were reported instead of five. The beans, however, were listed the same as in the present study.

Hidatsa ceremonialism, at the time of the exile of Crow-Flies-High, was being impeded by Indian agents and missionaries. These officials particularly loathed some of its more tortuous aspects. Ceremonialism among the exiles was further disrupted when the band scattered along the banks of the Missouri River. Although there was an earth-lodge "dance hall" at Crow-Flies-High Village, there were no special features or fixtures inside that distinguished it as a ceremonial center. War dances and a few other affairs were sometimes held in it, but the use of such fixtures as cedar trees and buffalo skulls was denied by informants. Two headmen acted as leaders during most of the dances, but no details could be obtained on their societal connections. The headmen, it was said, remained in the center of the lodge and managed the activities connected with the dances. An assistant was designated as announcer.

Few medicine bundles were owned by members of the band. Fast Talks' mother had a private medicine bundle. She was Mrs. Shooting Wood, the wife of a Sioux or Dakota man who was buried on the bluff top about a mile south of the village.[8] After her husband's death she married Chief Crow-Flies-High under a sororal arrangement.

At least two other men in the village were polygynous. Besides Crow-Flies-High, Black Hawk had two wives. The first one, named Mink, lived with her husband in a cabin on the plaza. The second one lived in a nearby cabin and her name was Different Cherries. Her cabin may have been one of those excavated in 1952.

At one time Bad Brave and Enemy Dog lived together with their wives in a single log cabin. Mrs. Enemy Dog, incidentally, was still living in 1952 at Sully's Lake, on the Fort Berthold Reservation.

The turnover of residents in the village was fairly constant. It is known that Black Chest left the community and that Coyote Necklace repaired the empty cabin and moved in. Two Crows moved into the cabin vacated by Coyote Necklace.

From informants a partial list of nearly 100 names of exiles has been compiled. It includes most of those people who were at one time or another members of Crow-Flies-High's band. In most cases their clan affiliation was also determined. The original purpose of this research was to determine if there was a correlation between clan and moiety membership and cabin location at Crow-Flies High Village. The correlation proved to be negative, but the list is reproduced in appendix A for its sociological value.

The main function of the clan was to establish a rule of exogamy. There are some suggestions that chieftanships had a tendency to follow along clan lines, but military prowess was regarded as of greater importance for a leader than kinship ties. Lowie (1917, p. 2) mentioned that the moiety was important in politics, in sharing new property or meat, and possibly in the use of eagle pits. Several of these pits, incidentally, are still located in the vicinity of Crow-Flies-High Village. One, for example, is in Verendrye National Monument across the Missouri River a few miles downstream from the village.

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[8] This is the grave which was looted by an amateur collector, the local barber in old Sanish, N. Dak.

The informants did not recall hearing of any disturbances in the village from raids by predatory bands of Indians, thus it is evident that the military situation was not the serious matter that it was at the time they went into exile about a decade earlier. It may be remembered that rifle cartridges found in one of the cabins bore the manufacturer's date of 1885; hence, by that time the weapons were used primarily for hunting game.

## HISTORY OF CROW-FLIES-HIGH'S BAND

The history of Crow-Flies-High Village began early in the 1870's. There was a Hidatsa chief named Heart, or Crow-Flies-High, who lived at Like-A-Fishhook Village, better known now as Fort Berthold. This was the economic, political, and military center of the combined Arikara, Mandan, and Hidatsa tribes, and this chief was one of the leaders of the community.

These were difficult times at Fort Berthold. The buffalo herds were depleted, and the remnants were hundreds of miles to the west. Government assistance was inadequate, the Indian gardens were small, and much damage was being caused by the rigorous climate, grasshoppers, and worms (Sperry, 1874, p. 242). Besides, the Dakota Indians were hostile, and several villagers had been killed by them. In 1874, for example, the Dakota lured a war party from the village, led them into an ambush and killed five Arikara and one Mandan (ibid., p. 243). Diseases also took a heavy toll of life. Nearly half of the Indians, according to Sperry, were actually living off the reservation, "serving as scouts at military posts hereabouts, hunting for game, visiting friends among other tribes, or making winter quarters at various places between Forts Buford and Peck, where the conditions for getting a living during the winter" were more favorable than they were nearer home (ibid., p. 242). Some of them hunted for 4 or 5 months out of the year. A few were encouraged by the Agency to cut wood for steamboats which were expected on the river the next season (ibid., p. 242). But in general the outlook for the future seemed bleak, indeed, and Hidatsa social organization was showing signs of deterioration.

According to informant data the rift in Crow-Flies-High's band occurred in this manner. There were two subchiefs who went to the Indian Agent claiming to represent all the natives on the reservation, and on this basis they obtained two steers. Instead of properly distributing the meat, however, they merely consumed it themselves. This was regarded by some as antisocial behavior, and the news of the act soon spread throughout the reservation. The two men were even accused of having indulged in this practice on several previous occasions.

In protest, a large group of Indians went in a body to the Agency where they set up a camp. Crow-Flies-High acted as their spokesman. They met with Agency officials and demanded to know what had been taking place between them and the two conniving subchiefs, Lean Wolf and Crow Paunch.[9] These agents were said to have been told at the meeting that these two Indians had been using the meat they had acquired for their own purposes. Besides, said the delegation, they were not really chiefs. The real chiefs, they remarked, usually stayed at home among the Indians, and seldom did they council with Whites. It was finally agreed that the agents would give these Indians some meat to eat while they were still camped at the Agency headquarters.

After the delegation had delivered their complaints and had made their suggestions for improving the distribution of food and equipment, the Agency issued them some rations. Then they returned to their homes at Fort Berthold.

As an aftermath the two rival chiefs, Lean Wolf and Crow Paunch, planned to assassinate Crow-Flies-High. They made efforts to engage four men, Sitting Elk, Cherries-In-The-Mouth, Chicken-Lies-All-The-Time, and Knife to do the killing. Knife, incidentally, later joined the band of Crow-Flies-High. Frequent rumors of the death plot had reached Crow-Flies-High, and it was often suggested that he should leave the reservation until the animosities against him subsided.

A number of followers planned to depart with the chief if he decided to go. Finally a decision was made, and about 1870 they moved upstream. The official version of this movement was given a few years later by an Indian agent:[10]

> This band of Indians under the leadership of Crow Flies High, quite a noted Gros Ventre character, separated from the bands of Arikarees, Gros Ventres, and Mandans of this place several years ago, owing to a disagreement on the part of Crow Flies High and the present Gros Ventre chief in regard to the elevation of the former to the distinguished honor of chieftainship. Being defeated in

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[9] Lean Wolf, or Poor Wolf was said to have worn his hair with a forelock as did most others in his clan. He was a Water Buster, or as Lowie wrote, a "Real Water." (Lowie, 1917, p. 23.) Lean Wolf's wife was a member of the Knife clan. He belonged to the *awaxa'wi* community of Hidatsa who had a slightly different language before they combined with the other Hidatsa bands at Fort Berthold (Lowie, op. cit., p. 17). Wilson also remarks on the presence of Lean Wolf at Like-A-Fishhook village. (Wilson, 1917, p. 107, and 1934, p. 352.)

[10] Gifford (1885). It should be mentioned that Indian Service records and personnel refer to the Hidatsa as Gros Ventres. These are not to be confused with the Algonquian-speaking Gros Ventres hundreds of miles farther up the Missouri River, in Montana, known to anthropologists as the Atsina.

> his ends, Crow Flies High and his followers migrated to Fort Buford, 120 miles west of here, and remained there.

Approximately 140 persons accompanied the chief on this exodus from Fort Berthold Reservation.

That a few Mandans accompanied the group into exile is not unexpected. Their numbers had fallen so low by this time that they had virtually lost their tribal identity. Lowie (1917, p. 7) noted in 1910 that they had diminished to a mere 197, and no doubt they were almost as few in numbers the quarter century preceding. In 1952 a few aged individuals were pointed out as "the last of the Mandans."

After the band departed, some of the exiles returned to the reservation. Black Chest was among the returnees, and others joined the group from time to time. Actually, the turnover of members seems to have been fairly high. Hawk and his son Bear-In-The Water (Adlai Stevenson, our informant) were among the people who later joined the band.

After leaving Fort Berthold, the band moved upstream along the Missouri River, settling near Fort Buford. Two earthlodges were constructed in the settlement, one by Bobtail Bull, a Mandan, and the other by Bull Head.[11] The others constructed cabins. There was no "dance hall" erected in this village, but if an earthlodge was needed for a ceremony, one of the two existing structures was used. Crow-Flies-High remained as chief of the exile band, while Black Hawk acted as an assistant. Many Antelopes replaced Crow-Flies-High as military chief at Like-A-Fishhook Village. Bobtail Bull, incidentally, was also regarded as a chief of the exiles. The informants denied that any of these persons possessed important medicine bundles.

Once they had left the reservation they were no longer able to obtain Government aid, rations, or equipment. For nearly 25 years the band had to be self-sustaining. At first they were able to provide themselves with bison and other game animals, but later, when these sources of food and supplies were gone, they had to rely more on farming and on other means of getting a livelihood. Early during their exile they were attacked by hostile war parties. Once an enemy group stole some of their horses. A party of Hidatsa warriors went in pursuit and in the conflict which followed, Two Bulls was killed.[12] Soon afterward they were able to kill three men in the enemy party in revenge. Relationships with the Army staff at Fort Buford were apparently satisfactory at first. Among the exiles, Crow-Flies-High was elevated to military chief, the position he had lost to Many Antelopes at Like-A-Fishhook Village.

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[11] The informant, Adlai Stevenson, was a young man at this time and he lived near these two lodges.

[12] The informant was a cousin of Two Bulls.

The Indian settlement at Fort Buford was not occupied continuously because it was primarily a winter camp and base for their hunting expeditions. During many of the summers they occupied Crow-Flies-High Village, where they grew crops. From their Fort Buford camp, however, they traveled north, west, and south in search of game. Often they traveled up the Yellowstone River, past Glendive, Mont., and as far upstream as Miles City. Sometimes when up the Yellowstone, they crossed overland to the Little Missouri, then moved downstream to the Missouri River proper. This was just one of several hunting routes they followed when in search of game.

Both Fort Buford settlement and Crow-Flies-High Village were used irregularly; thus it is not possible to determine accurately the length of time they were occupied. Crow-Flies-High Village, at best, seems to have had a net occupation of nearly 10 years.

When game disappeared, it became necessary for this band to seek new sources of sustenance. To add to their supplies, several smaller winter camps were set up along the Missouri River, on both banks between the Fort Berthold Reservation and Fort Buford. Here they chopped wood, which was sold to the steamboats plying up and down the river. Reports of prostitution among a few women in these camps reflects a moral breakdown during this period of hardship. The river camps, like others used earlier, were not occupied continuously but were seasonal.

As the years passed, the band dispersed more and more along the banks of the Missouri River between Fort Buford and Fort Berthold. Loss of game caused economic hardships, but it also permitted them freedom from harassing raiding parties. Relief was provided when their enemies sought sustenance elsewhere. When a strong military organization was no longer required, definite changes were made in Hidatsa social and political structures.

Sometime during the 1880's a number of men in Crow-Flies-High's band were recruited at Fort Buford as Indian scouts. Trouble with the Dakotas, under Chief Sitting Bull, was anticipated, and preparations were made by the U.S. Army to quell an outbreak. The families of the Hidatsa men who had enlisted were not happy over the prospects of their youths being killed by the Dakotas, but aside from voicing unhappiness, no objections were made to their engagement. Indeed, as servicemen, the youths were able to augment the income of their families, and this fact added to the attractiveness of the venture.

The scouts (which included our informant, Adlai Stevenson), together with soldiers, their horses, and equipment, rode to Bismarck, where they were placed on a train to South Dakota. The fight with the Dakotas did not materialize, and the military forces returned to Fort Buford. The Indian scouts thereafter served as military mail couriers and messengers. Often the scouts traveled to Montana points such as Poplar, Plentywood, and even as far up the Yellowstone River as Glendive.

The band could have returned to the reservation at any time during their exile. Indeed, all of them at one time or another visited the Agency headquarters, where they were given presents such as coffee and tea. One such visit was described by Sperry (1875, p. 241).

> A band of Gros Ventre seceders, numbering about 100, spend nearly all their time near Fort Buford, one hundred and thirty-five miles above this place, and although considered as belonging to this agency and entitled to its privileges, are not enrolled here. Small delegations from their camp visit us occasionally and receive the regular ration as long as they remain.

Crow-Flies-High himself sometimes visited the Agency. Murphy, the agent, recorded one such visit (1890, p. 30):

> Two or three days ago the Chief Crow-Flies high came to the agency accompanied by a few of his men, one of whom wanted his horses shod.

The original reasons for the exodus were more or less forgotten over the decades. Instead, new obstacles faced them in making an adjustment to reservation life. They chose to remain away rather than conform to the program of integration which was being followed by governmental officials. If they returned to the reservation, for example, they would have had to give up their children to go to school, and they would have been required to assume an allotment of land and its cultivation. Moreover, a tribal court, consisting of an "intelligent Indian with Judicial ability" from each of the three tribes on the reservation, was given powers to break polygynous marriages and to mete out punishment for other customs which white men found offensive (Gifford, 1888, p. 42). None of these prospects appealed to the band. Thus, the cause of their departure was one thing, but the reason for their absence from the reservation for 25 years was another matter.

By 1884 relationships between the exile band and the military post at Fort Buford had deteriorated. In autumn of that year the exiles were ordered away by the commanding officer. According to the Indian Agent they settled on the Little Knife River (Gifford, 1888, p. 29). More than likely this settlement was across the Missouri River from the mouth of the Little Knife River at Crow-Flies-High Village. Two years later John Goodall built a homesteader's cabin about 1 mile west of the village, but his presence does not seem to have bothered the Indians.

In 1889 an Indian agent, Thomas H. B. Jones, and Col. W. W. Junklin met with Chief Crow-Flies-High and discussed the return of the band to the reservation. Jones (1889, p. 147) reported the meeting thus:

> We held council with Crow-Flies-High, with a view to obtaining his consent to the adoption, by his tribe, of the civilized pursuits of the other Indians, and to the advisability of placing all their children of school age in school the coming fall, or as soon as the Catholic Mission school (now under course of construction) should be completed. After four hours' argument and persuasion, I am happy to report that we succeeded in getting his consent. These Indians will take up allotments, and commence farming the same, as soon as they can be supplied with sufficient agricultural implements.

Crow-Flies-High's band was still widely scattered up and down both sides of the Missouri River in 1894, when it was finally decided to move back onto the reservation. For a quarter of a century they had been without government assistance, and besides, Whites had appropriated much of the land, further reducing their chances of making a living. After a series of consultations between chiefs and Indian Agents it was agreed that the band should return to the reservation. A military escort, including Hidatsa Indian scouts still enlisted at Fort Buford, provided assistance. The Indian Agent, an Army Captain, boastfully announced to the Commissioner of Indian Affairs: "It is a source of gratification that the band of Crow-Flies-High was forced upon the reservation in the spring of 1894 . . ." (Clapp, 1895, 232). There is no real evidence except the assertion of Captain Clapp that force was necessary to make the Indians return to the reservation. At least part of the military escort consisted of Indian scouts who belonged to the Indian band.

At Tobacco Creek, a few miles above Newtown, they were all reunited as a band for the first time in many years. At this time Crow-Flies-High relinquished his chieftainship in favor of a younger man. He knew that he would not live much longer, so he began to examine the qualifications of several prospective successors in his own clan. Finally he decided to support a more distant kinsman, Long Bear, as his choice for chief. After this, the band formed a long column which moved southward toward the reservation, traveling along the north bank of the Missouri River. Rufus Stevenson, who was then a mere lad, still remembers seeing the long line of Red River carts (a two-wheeled vehicle), pack and saddle horses, and travois wending their way toward the reservation. The arrival date is given as April 2, 1894 (Clapp, 1894, p. 222).

When they reached the reservation most of them settled near the mouth of Shell Creek, southeast of Newtown, N. Dak. One final earthlodge was built there, probably the one reported by Wilson as constructed by Hairy Coat (Wilson, 1934, p. 380). This man's name does not appear anywhere in connection with Crow-Flies-High's band, and therefore it might be assumed that he moved to Shell Creek after 1894. The exiled band had for many years retained older elements of Hidatsa culture, since they were relatively isolated and out of contact with the changes being effected by Indian Agents on the reservation. At Fort Berthold changes began to occur at a rapid rate. Clans, for example, almost immediately began to lose their exogamous function. Clapp (1895, p. 232) noticed other changes which were to occur during the following years.

> They are, however, far behind the other Indians in industry and habits of life, and it will take some years before they will take kindly to cultivating fields and intelligently caring for stock. Their children are, so far, wholly untaught, and for some years to come this fragment will continue to be a source of trouble and anxiety to the agent.

Chief Crow-Flies-High died of pneumonia in 1900 (Richards, 1900, p. 315). The episode of his exile, however, is not a closed book but still concerns Indians and Whites alike. Claims against the United States are being pressed by the descendants of these people for their loss of rations, land, cattle, and equipment.

## CONCLUSIONS

Excavations at Crow-Flies-High Village gave details on the life of an exile band of Hidatsa Indians who had left Fort Berthold Reservation during the 1870's. The archeological study is strongly augmented by ethnographical information and historical accounts.

It is not known when Crow-Flies-High Village was first established. The band went farther upstream to Fort Buford when they first left the Fort Berthold Reservation. Heaviest occupation of the village, however, was during the 1880's. It was primarily an agricultural community, with the main activity here coming during the summer months. During other seasons their economy was centered on other occupations, such as hunting, chopping wood for steamboats plying the Missouri River, and similar pursuits.

So many small cultural items such as cooking and eating implements, weapons, and utensils had been acquired by the Hidatsa that the site did not seem to have been of native origin. Even their dwellings were of European derivation. Certain larger structures were retained from earlier times for ceremonial purposes. Storage pits in the ground were also maintained in connection with their cabins.

Two earthlodges were constructed first at Fort Buford, while another one was built at Crow-Flies-High Village. A final earthlodge was erected at Shell Village after the band returned to the reservation. In all these cases they were simple in type, serving usually as a dwelling, but sometimes they were converted into a ceremonial center. This tendency to erect single earthlodges for ceremonial centers, while simple structures were substituted for dwellings in newly established communities, was adumbrated about two centuries earlier at the Hagen site, on the Yellowstone River. Here, after an earlier split among the Hidatsa, a group of dissidents had left their kinsmen on the Missouri River and had built a village on the Yellowstone River, near Glendive, Mont. (Mulloy, 1941). Later they became the Crow Indians. At the Hagen site, as at Crow-Flies-High Village, the exiles had built a single earthlodge of a simplified type as a ceremonial center and had erected smaller structures as dwellings.

There is reason to believe that the formation of Crow-Flies-High's band was no fortuitous circumstance in which conservatives from all segments of the Hidatsa tribe joined in protest to an acute political situation at Fort Berthold. It is more probable that it was made up primarily of Hidatsa who had always represented an advance element in the movement up the Missouri River over the centuries. Crow-Flies-High's band may have always been a separate unit within the Hidatsa structure. The Crow Indians may have had a similar association with the Hidatsa in centuries earlier, when they made their break as an independent tribe.

Crow-Flies-High's band, according to Alfred Bowers (personal communication), had worked its way up the Missouri River from South Dakota, preceding other Hidatsa bands who were more sedentary. This advance group had always done more hunting, made pottery less often, and in several other ways differed from the others. Life at Fort Berthold must have been a greater strain on these people than on the other Hidatsa.

The study of Crow-Flies-High Village and its occupants gives us a better understanding of human characteristics and social processes which have determined the affairs of the sedentary tribes of the Missouri River during the past 200 years. It links archeological fact and ethnological reality.

## BIBLIOGRAPHY

CLAPP, W. H.

1894. (Communication in) Rep. Commissioner of Indian Affairs for 1894, pp. 220–223.

1895. (Communication in) Rep. Commissioner of Indian Affairs for 1895, pp. 231–233.

CRAWFORD, LEWIS F.

1931. History of North Dakota, vol. 1. Amer. Hist. Soc. New York.

GIFFORD, ABRAM J.

1885. (Communication in) Rep. Commissioner of Indian Affairs for 1885, pp. 29–32.

1886. (Communication in) Report of the Commissioner of Indian Affairs for 1886, p. 280.

1888. (Communication in) Rep. Commissioner of Indian Affairs for 1888, pp. 42–46.

JONES, THOMAS H. B.

1889. (Communication in) Rep. Commissioner of Indian Affairs for 1889.

KIVETT, MARVIN F.

1948. Preliminary appraisal of the archaeological and paleontological resources of the Garrison Reservoir, North Dakota. Prepared by the Missouri Project, Riv. Bas. Surv., Smithsonian Inst. Lincoln, Nebr.

Lowie, Robert H.

1917. Notes on the social organization and customs of the Mandan, Hidatsa, and Crow Indians. Anthrop. Pap., Amer. Mus. Nat. Hist., vol. 21, pt. 1, pp. 1–99.

Mulloy, William T.

1941. The Hagen site: A prehistoric Indian village on the Lower Yellowstone. Univ. Montana Stud. Social Sci., No. 1.

Murphy, Jno. S.

1890. (Communication in) Rep. Commissioner of Indian Affairs for 1890.

Richards, Thomas.

1900. (Communication in) Rep. Commissioner of Indian Affairs for 1900.

Sperry, L. B.

1874. (Communication in) Rep. Commissioner of Indian Affairs for 1874.

1875. (Communication in) Rep. Commissioner of Indian Affairs for 1875.

Wedel, Waldo.

1948. Prehistory and the Missouri Valley development program. Summary report on the Missouri River Basin Archeological Survey in 1947. Smithsonian Misc. Coll., vol. 111, No. 2.

Will, George F., and Hecker, Thad, C.

1944. Upper Missouri River Valley aboriginal culture in North Dakota. North Dakota Hist. Quart., vol. 11, Nos. 1 and 2, pp. 5–126.

Wilson, Gilbert L.

1917. Agriculture of the Hidatsa Indians: An Indian interpretation. Univ. Minnesota, Social Sci. Stud., No. 9. Minneapolis.

1934. The Hidatsa earthlodge. Bella Weitzner, ed. Anthrop. Pap., Amer. Mus. Nat. Hist., vol. 33, pt. 5, pp. 341–420.

# APPENDIX A

## MEMBERS OF CROW-FLIES-HIGH'S BAND

This list of members of Crow-Flies-High's band and their clan and moiety affinities was prepared with the cooperation of interpreter Rufus Stevenson, and his father, Adlai Stevenson. During the 1930's Rufus Stevenson had acquired part of the list from Bulls Eye and George Parshall, both now deceased. Adlai Stevenson was born in 1866 and was 4 years old at the time of the exile. He returned to the reservation in 1894 after having served for many years as an Indian scout and hunter for the Army at Fort Buford.

### FOUR CLAN MOIETY

(Four Tribes Together, or Nagitawobi)

*Awaxera'wita Clan* (Eats-From-The-Line)

Two Heart
Red Tail
Iron Eyes
Spotted Rabbit (Also listed in Lowie, 1917, p. 23. His wife was a Prairie Chicken. They were married after the return from the exile.)
Long Bear (Son of Cherry Necklace. The latter was also the maternal great-great grandfather of Rufus Stevenson. His brother was He-Raised-All-Hearts.)
Coyote Necklace
Bird Bear
Joe Young Bird
Crow-Flies-High, or Heart
High Vertebrae, or High Backbone
Four Dances (Probably she later became Mrs. Four Blankets.)
Frank Birdsbill
Crow Belt
Two Wolf
George Parshall
Mrs. Ed Blacklin (She married Blacklin after the exile. He had not been on the exodus.)
White Bear (Son of Bear Necklace.)
Kid
Owl-Comes-Out
Mrs. Conrad Smith (She was unmarried during the exile.)
Ernest Black Hawk (A son of Chief Blackhawk.)
One Feather
Stink Gun
Mrs. Foolish Bear (Confirmed by Lowie, 1917, p. 23.)

*Prairie Chicken Clan*

Mrs. James Wolf (She was unmarried during the exile.)
Birdsbill (Wilson, 1917, p. 351, said he was a Mandan.)
White Blossom
Ara Waters
Mrs. Many Ribs
Blue Blanket (His wife was probably Four Blankets.)
Mrs. Dragwolf (She was reported by Lowie as Mandan. See Lowie, 1917, p. 23. Evidently she married Bulls Eye after their return from the exile. Her maiden name was Prairie Dog Woman.)

*Prairie Chicken Clan*—Continued

Driver or Pan (Mrs. Bulls Eye and Driver were siblings. In an earlier interview Adlai Stevenson had said Driver was in the Coyote Moiety.)
Two Bull
Mrs. Spotted Bear
Black Hawk
Bull Head
Long Tail
Charlie Grant
Allan Smith
Bear Necklace
Mrs. Spotted Horn
Crow Paunch (He did not go on the exile, but was one of the two men who reportedly wanted Crow-Flies-High assassinated.)

*Water Buster Clan* (Lowie, 1917, refers to it as "Real Water Clan." A branch of it was known as Itisuha, and its members reportedly had to wear their hair with a forelock.)

Knife
Mike Basselle (Listed by Lowie, 1917, p. 24., as Mike Bassette)
Joseph Harris (Harris and Basselle were brothers, but when they attended schools at different times they were assigned different European names.)
Powder
Crow Bull (Also listed by Lowie, 1917, p. 24. His wife was a Prairie Chicken, but was not on the exile.)
Mrs. Ole Bull
Charging Enemy
Wolf
Chicken-Can't-Swim (See Wilson 1934, p. 352. Apparently he had three wives at Fort Berthold.)
Mark Necklace (Coyote Necklace's son.)
Dragswolf (A son of Crow-Flies-High. He had been given this name by Long Bear.)
Comes-Straight-At-It
Blow Snake

*Wide Butte Clan*

Foolish Bear (Lowie, 1917, p. 24.)
George Elk (Lowie, 1917, p. 24.)

## THREE CLAN MOIETY

(Coyote, or Naginawea)

This moiety was divided into three parts: (1) Head Gear Low. Their name is derived from a legend. (2) The Soddy Lodges. When these people built their lodges they were said to have obtained the earth covering downstream from the others. The soil came from below some springs which gave the lodge a gray color. (3) Knife Men. These were supposed to be exceptionally brave in battle.

Unfortunately, our informant failed to distinguish between the various clans in this moiety. Whenever possible, however, names are listed by their clan affiliations.

*Head Gear Low clan*

Adlai Stevenson, or Bear-In-The-Water

*Soddy Lodges clan*

Luther-No-Arm
Fast Dog
Spotted Horn
Yellow Wolf

*Knife Men clan*

Louis Baker (Lowie, 1917, p. 23.)
Nona Baker (Lowie, 1917, p. 23.)
Harry Eaton (Lowie, 1917, p. 23.)
James Baker (Lowie, 1917, p. 22. His wife was a Mandan.)

*Clans unidentified*

Red Shield
Bobtail Bull
Crow Arm
Stands-Up-Bear
Two Shields
Two Crows
Wolf-Sleeps-Too-Long
Yellow Hair (Mrs. Four Bulls. Fred Green, a grandchild, was still living in 1952. He was alive at the time of the exodus but was not a member of the party at that time.)
Leans, Or Sitting-White-Buffalo (He was a Dakota intermarried with the Hidatsa. He had declined at first to join a clan, but finally he selected one in the Coyote moiety because of the greater war prestige of its membership.)
Shooting Wood (He was also a Dakota who had intermarried with the Hidatsa. Like Leans he was urged to join a clan. Someone suggested he join the Prairie Chickens, one of the largest clans. He declined this bid and joined a clan in the Coyote moiety instead because of the greater war prestige of this group. When Shooting Wood died, he was buried on a bluff top across from the now-abandoned town of Sanish, N. Dak., on the Missouri River. His grave was pilfered many years ago by a local amateur curio and relic collector. A. J. Gifford (1886, p. 280) comments on the Sioux who had intermarried among the Hidatsa at Fort Berthold.)
Sitting Bear
Broken Axe
Edna Face
Rufus Stevenson (Born during the exile in 1886 at Williston, N. Dak.)
Takes Gun
Sand
Mrs. Iron Eyes (She was not married to Iron Eyes at the time of the exodus but married him later.)
Mrs. Dan Wolf
Glen Smith
Mrs. Enemy Dog
Medicine Crow

*Clans unidentified*—Continued
- Short Bull
- Steven Bird
- He-Burns-Eagle
- Chester Smith
- Mrs. Joe Young Calf

*Moiety and clan unidentified*
- Plain Voice
- Red Feather
- Black Chief
- Watching Bear

# APPENDIX B

## SPECIMENS FROM CROW-FLIES-HIGH VILLAGE

The specimens listed here are mostly from cabin 1 at Crow-Flies-High Village. Generally they appear to date between 1880 and 1900, but a few are even more recent. Wire nails, in particular, may be regarded as early 20th century. It is not at all unlikely that a few members of Crow-Flies-High's band occasionally utilized the cabins at the village near Sanish, even after they had returned officially to the reservation. The village itself is only 1 mile from the northernmost boundary of the reservation. John Goodall, the homesteader here, may also have used these structures.

Pieces of wagons, leather straps, and numerous buckles show the importance of horses and horse-drawn vehicles to these people. Toys, such as cap pistols, harmonicas, wheeled vehicles, and dolls, attest to the interest of parents in supplying the children with such items from the white man's world. While informants denied the use of stoves, pieces of them found in cabin 1 indicate otherwise. At least some of the people had used stoves in this village. Tin cans were numerous, but in most cases brand names, being lithographed or glued on, were absent.

"Lewis' Beauty Tobacco," together with the figure of a woman, and "Mixture Smoking Tobaccom Four Oz.," were lithographed on one can recovered. Other brand names were pressed into the tin can. These included the following:

"Sensation Plug Tobacco"
Packing and Provision of St. Paul
    Absolutely Pure Lard
        (5 Pound Can)
Price's Cream Baking Powder
The Most Perfect Made
    12 Oz. Size

One tin lid was sample stamped "American," evidently a brand name. Other items from the site included these:

Iron garden tool part
Wheel from a toy vehicle
Sleigh bell
Knife handle (2 specimens)
Table knife (2 specimens)
Metal button from a pair of pants
Small doorknob
Ornamental metal cup

Large tablespoon
Wire handle for a lard can
Pearl buttons (2 specimens)
Glass beads (2 white, one purple, one brown)
Perforated bone object
Clamshells (3 specimens)
China leg from small doll
Boy's shoe
Leather straps (5 specimens)
One pound coffee can
Tin cans (15 specimens—brands unidentifiable)
Tin can lids (18 specimens)
Large square can, like modern syrup cans
Large square can with hinged lid
Tin cup
Tin bowl
Portion of iron stove
Stove lid
Leather straps (5 specimens)
Leather straps with holes for buckles (3 specimens)
Railroad spikes (3 specimens)
Two files
Pocket knife
Toy cap pistol (Brand name: Volunteer. Pat. Apr. 22, 1873)
Iron bar from wagon bed
Harmonica
Perforated tin lid (Possibly used as a base for a large button)
Padlock and key
Buckle, and part of strap attached
Buckles (4 specimens)
Scissors
Tin spoon handle
Cartridge shells (17 specimens. Date of manufacture on some: 1886, 1887)
Square nails (16 specimens)
Round, or wire, nails (Post 1900)
Cinch buckles
Pieces of wire
Horseshoe nails (4 specimens)
Toothpaste jar lid
Portion of a plate made in England

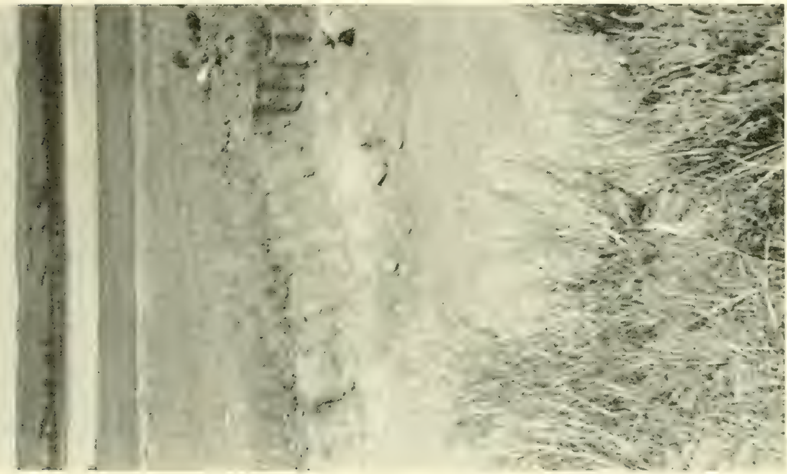
Numerous fragments of bottles, dishes, and glass, as well as unidentifiable metal objects, were also obtained at this site. Almost all of these were of European or American make, but occasionally objects characteristic of Indian cultures in this area were found.

*Upper*, Bottomlands at base of terrace where Crow-Flies-High Village is located. The village was on the terrace to the right, the river to the left. View south. The community graveyard was on the bluffs in the distance. *Lower*, Cabin 1, view north.

*Upper*, Cabin 1, view northeast. *Lower*, Cabin 1, view northeast.

*Upper*, Cabin 1, view east. *Lower*, Cabin 2. Note cans and rocks on floor.

*Upper*, South end of Cabin 2, with test pit extending below floor level. *Lower*, Cow skeleton, stored in cache pit 1.

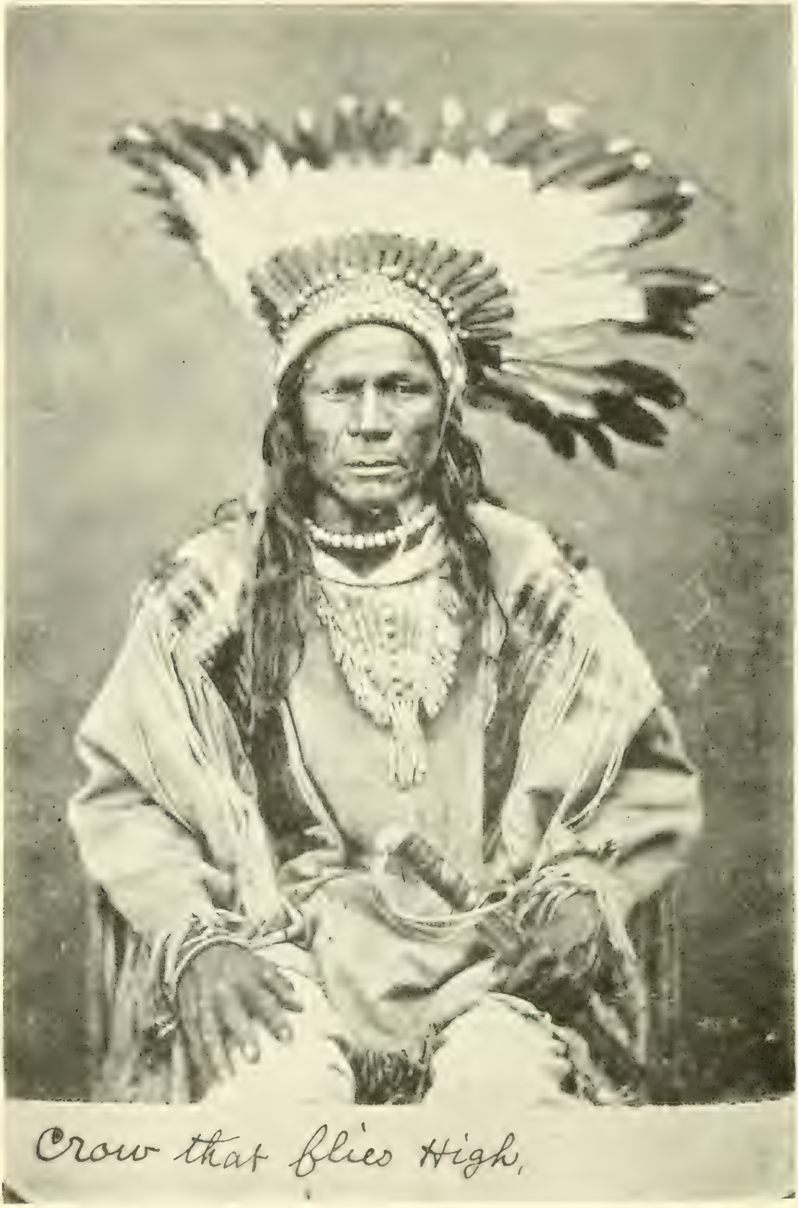


*Left*, Cabin 2, view southeast.

*Right*, Cow skeleton in cache pit 1.

*Upper*, Cow skeleton in cache pit 2. *Lower*, Small garden area used by Hidatsa at Crow-Flies-High village. Antelope Creek flows to the left among the trees in the background.

*Upper*, Garden plot at confluence of Antelope Creek and Missouri River. Bear-In-The-Water, or Adlai Stevenson, an occupant of Crow-Flies-High Village during the 1880's is on the right. *Lower*, "Indian Gardens," once the largest of the garden areas cultivated by Hidatsa at Crow-Flies-High Village. The land was located about 1 mile north of the Village. View here is north-northwest.


Crow that flies High,

Crow-Flies-High. (From a photograph taken at Bismarck, Dakota Territory, 1881.)

SMITHSONIAN INSTITUTION
Bureau of American Ethnology
Bulletin 185

## River Basin Surveys Papers, No. 30

# The Stutsman Focus: An Aboriginal Culture Complex in the Jamestown Reservoir Area, North Dakota

By R. P. WHEELER

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# THE STUTSMAN FOCUS: AN ABORIGINAL CULTURE COMPLEX IN THE JAMESTOWN RESERVOIR AREA, NORTH DAKOTA[1]

By R. P. Wheeler

## ABSTRACT

The term Stutsman Focus identifies a newly recognized aboriginal culture complex represented at 10 sites that occurred along the west side of the James River, from about 2⅕ miles to about 6½ miles in an airline north and northwest of the Jamestown Dam, which lies just above the city of Jamestown, in Stutsman County, east-central North Dakota. The sites are now covered, or are in imminent danger of being engulfed, by waters of the Jamestown Reservoir.

Prominent traits of the Stutsman Focus include:

1. Unfortified, semipermanent town sites and transitory campsites on flood-free alluvial terraces along the upper James River; and eagle-trap sites on the crest of valley ridges in this area.
2. Small, circular, earth-covered (?) lodges, randomly placed and rather closely set, with four central supporting posts and two rings of peripheral posts, a long covered entryway or vestibule opening on the east or southeast, one or more fireplaces, and small subfloor cache pits.
3. Various minor structures, including a small, circular sweat lodge; a bower; a drying rack; open unprepared and prepared hearths; and eagle-trap pits.
4. Secondary burials in eagle-trap pits.
5. Knife blades of trade iron and brass.
6. Culinary pottery of 16 newly defined and 6 previously defined (rim) types.
7. Utilized pottery sherds—gaming pieces?
8. Triangular and bilaterally side-notched arrowpoints, small end scrapers, T- and sickle-shaped drills, three-quarter grooved and full-grooved hammers, an incised cuboid pipe of limestone and pipe fragments of steatite and catlinite.
9. Splinter awls, flakers, quill flatteners or pottery tools, a shaft wrench, and paintbrushes of shaft, rib, or cancellous bone; and scapula hoes with intact head and centrally perforated body.
10. Shell pendants (?), some of which are of *Busycon contrarium*.
11. Remains of large and small mammals, predominantly mature and immature bison, and three species of freshwater mussels; and charred pits of wild plum, but no surviving traces of maize, beans, sunflowers, cucurbits, or tobacco.

---

[1] Submitted March 1959.

The material inventory implies seminomadic communities whose economy was based on a combination of horticulture, hunting (including eagle trapping), and collecting.

The ceramic complex appears to be intimately related to that of the Painted Woods Focus. This focus has been tentatively ascribed to the Hidatsa, and one or more groups of this seminomadic Northern Plains tribe may have been the authors of the Stutsman Focus. The presence of a few artifacts of trade metal and of examples of certain presumably late pottery types in the Hintz assemblage suggests that the Stutsman Focus may be placed in the early Historic Period and may be dated circa A.D. 1750 to 1800.

## INTRODUCTION

In this paper I propose to detail the returns from two partially excavated and eight unexcavated aboriginal occupation sites in the James River Valley, North Dakota; to combine the findings into a new culture complex, which I am calling the Stutsman Focus; and to suggest the cultural affinities and temporal placement of the Stutsman Focus, following the broad historical approach.

The investigations which produced the field data reported herein were part of the archeological salvage work undertaken by units of the Missouri Basin Project of the Smithsonian Institution River Basin Surveys intermittently between 1946 and 1954 in the area of the Jamestown Reservoir. The reservoir, a multiple-purpose water-control project of the Bureau of Reclamation, was created by a rolled earthfill dam built in 1952–1953 across the James River, in NE¼, sec. 24, T. 140 N., R. 64 W., about ⅕ mile north of the city limits of Jamestown, the county seat of Stutsman County, east-central North Dakota. One of the sites, listed as 32SN3 in accordance with the River Basin Surveys' site designation system and later christened the Hintz site, was discovered by J. Joe Bauxar and Paul L. Cooper in a preliminary survey of the reservoir area conducted in August 1946. Another site, the Joos site (32SN30), was located and probed while the nearby Hintz site was under excavation during an intensive reconnaissance of the area carried out in 1952. The other eight occupation sites treated in this report were brought in when final excavations were performed at Hintz in 1954 (fig. 26).[2]

The 1952 and 1954 expeditions were led by me. In 1952 I was aided at various times during the 4-month's campaign, between May 17 and September 26, by H. Thomas Cain and Alan R. Woolworth, field assistants; and by Eugene O. Allen, Lloyd R. Armstrong, Lee D. Boss, George L. Cowgill, Warren C. Cowgill, Hester A. Davis, David

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[2] Burial mounds, the other principal category of archeological remains located, examined, and tested (in two instances) in the Jamestown Reservoir area by parties of the Missouri Basin Project in 1946, 1952, and 1954, will be reported on by me in a separate article.

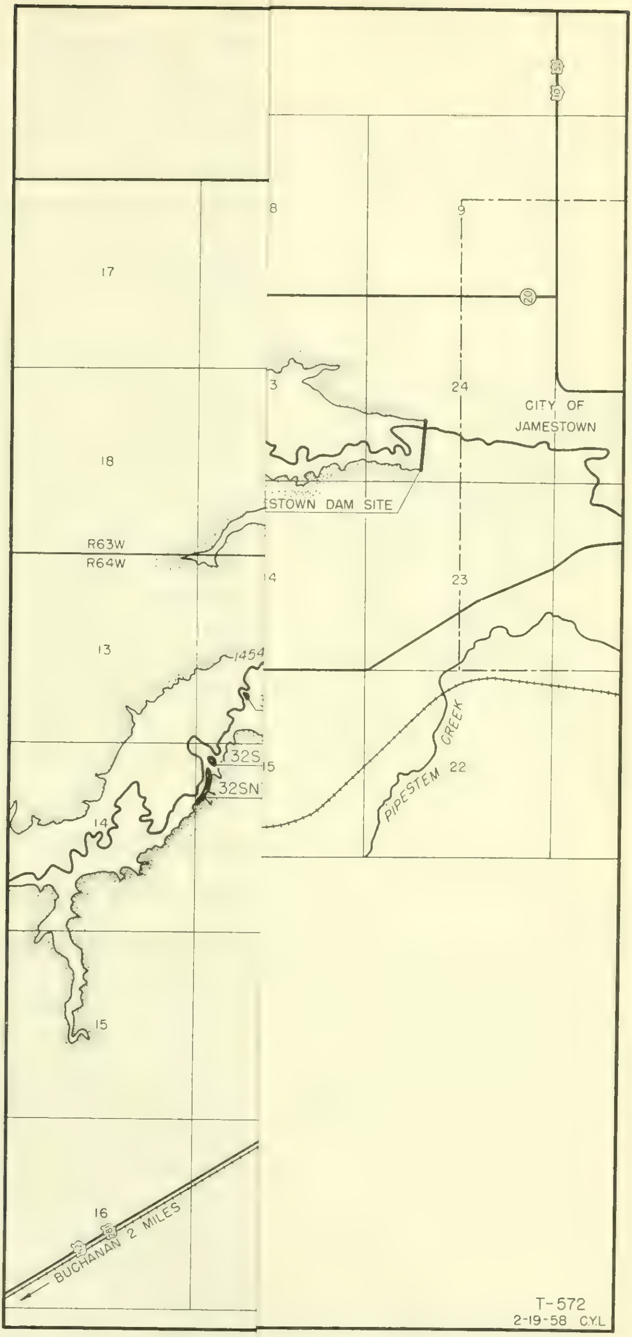
52
10
20
8
9
17
3
24
CITY OF JAMESTOWN
18
STOWN DAM SITE
R63W
R64W
14
23
13
1454
32S
15
32SN
PIPESTEM CREEK
22
14
15
16
52
281
BUCHANAN 2 MILES
T-572
2-19-58 C.Y.L

FIGURE 26.—ographic locations and
es.

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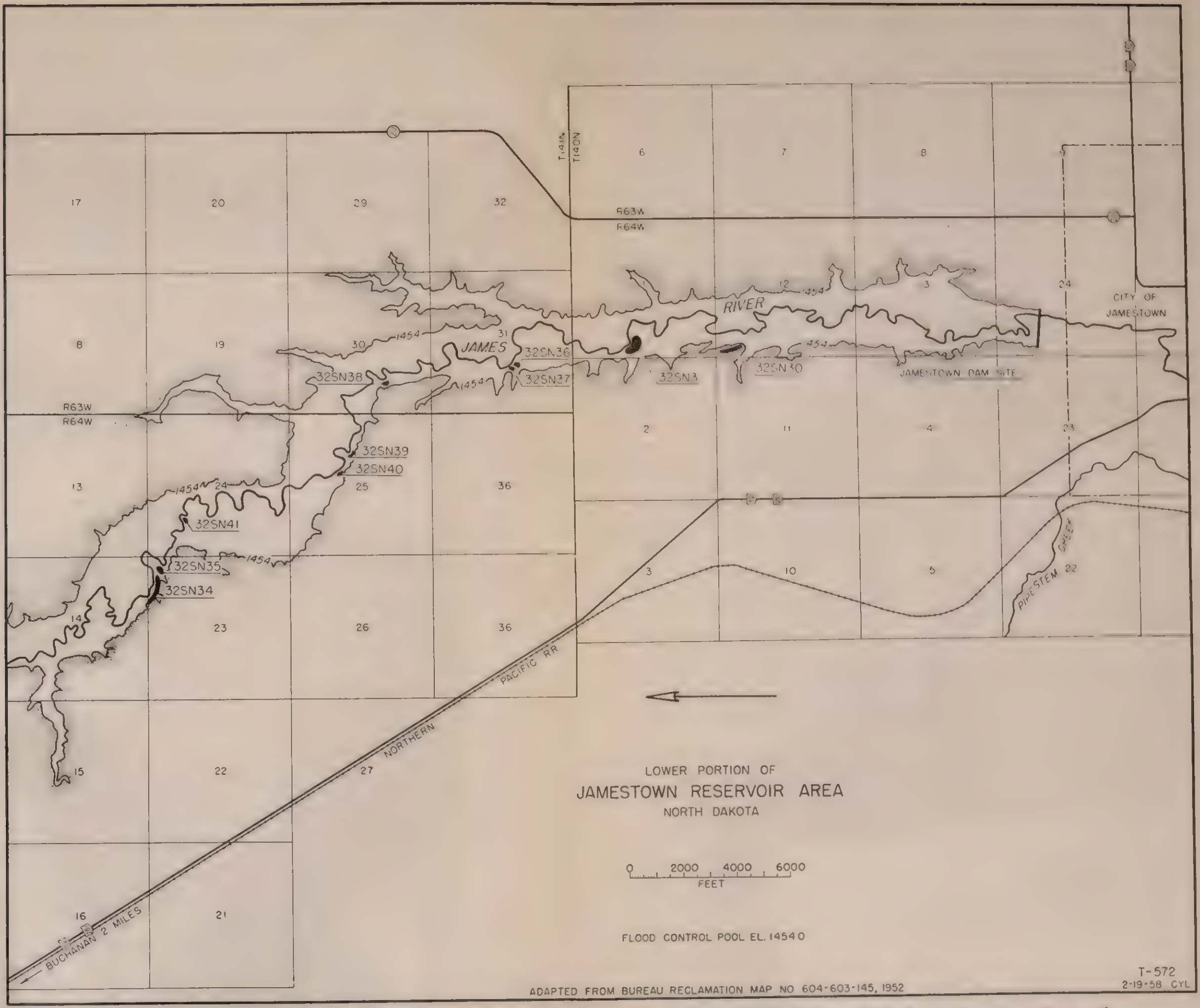
LOWER PORTION OF
JAMESTOWN RESERVOIR AREA
NORTH DAKOTA
0 2000 4000 6000
FEET
FLOOD CONTROL POOL EL. 1454.0
ADAPTED FROM BUREAU RECLAMATION MAP NO 604-603-145, 1952
T-572
2-19-58 CYL
JAMES
RIVER
CITY OF JAMESTOWN
JAMESTOWN DAM SITE
32SN30
32SN3
32SN36
32SN37
32SN38
32SN39
32SN40
32SN41
32SN35
32SN34
1454
T.141N
T.140N
R63W
R64W
NORTHERN PACIFIC RR
PIPESTEM CREEK
BUCHANAN 2 MILES
22
17
20
29
32
6
7
8
12
3
24
8
19
30
31
13
25
36
2
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4
23
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21

FIGURE 26.—Map of the lower portion of the Jamestown Reservoir area, North Dakota, showing the geographic locations and estimated limits of the Hintz site, the Joos site, and eight other pottery-bearing sites.

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A. Johnston, Jr., Thomas A. Kiernan, Lawrence H. Kropp, Jr., Reginald Littrell, Frederick D. McEvoy, Edward W. McGough, Thomas G. Mayer, Eugene J. Nelson, David J. Robertson, Robert J. Stein, and David B. Williams, field workers. In 1954 I was assisted during the 19-day period of field work in the Jamestown area (which was a rather abortive enterprise owing to the stormy June weather) by Lloyd R. Armstrong, Manny D. Buzzell, George E. Cassell, Harold A. Dietsch, Robert A. Espe, Richard J. Giddings, Frederick D. McEvoy, Joseph C. Peterson, and Robert J. Stein.

It is a pleasure to express gratitude to the following individuals for their contributions to the archeological operations in the Jamestown area: to Philip E. Ehrenhard, Project Engineer, Bureau of Reclamation, Region 6, for providing reservoir maps, engineering data, and wise counsel; to Chelsea C. Russell, Chairman of the Buchanan, N. Dak., School District, for permitting the 1952 field party to inhabit the Telken schoolhouse, and to Thomas Telken, for letting the party draw water from his well and for making storage space available, in 1952; to Mrs. Jim Dumphy, for allowing the 1954 field party to live in her vacant house about a mile northeast of the Telken schoolhouse, in close proximity to the reservoir area; to Larry Chambers, editor of the Jamestown Sun, for publishing creditable news stories concerning some of the archeological findings made in the Jamestown area in 1952; and to Oscar Hintz and Leroy Joos, local landowners, for granting permission to excavate the sites which lay in their holdings.

## ANALYSIS: SOURCES AND DESCRIPTIONS OF THE DATA

### THE HINTZ SITE (32SN3)

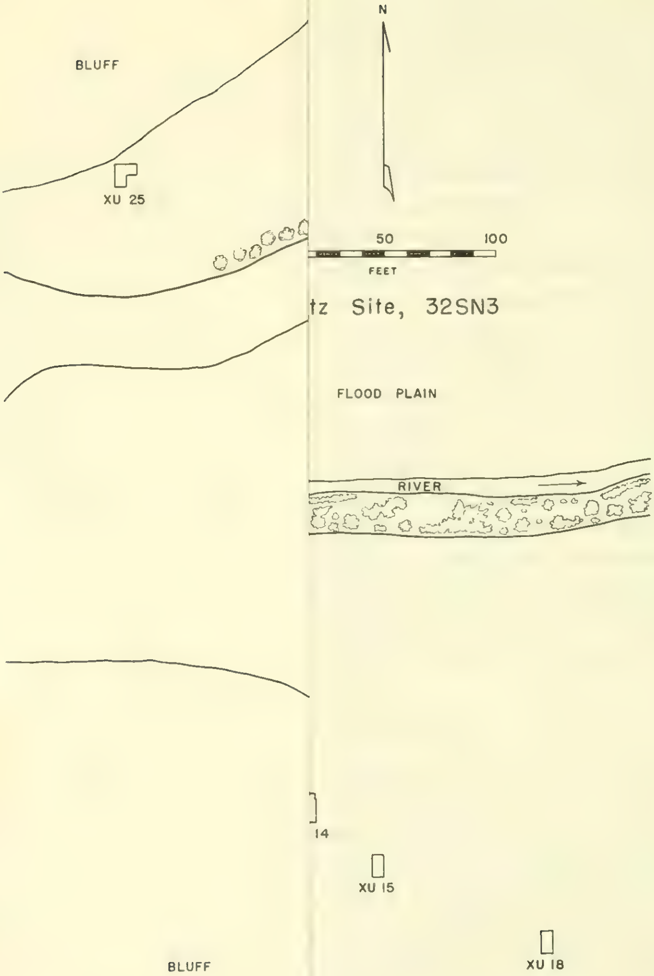
The few artifacts first recovered from this site came from a 0.7-foot-thick humus layer exposed in the east bank of a gully cutting headward into a low terrace bordering the south and west sides of the flood plain of the intermittent upper James River, at a distance of a little less than 3 air miles due north of the Jamestown Dam. The legal location of the find-spot was SW¼NW¼, sec. 1, T. 140 N., R. 64 W. The specimens collected at the time of discovery, in August 1946, included 10 small pottery sherds, 2 chipped stone artifacts, 1 unaltered flake, and 1 animal tooth. The investigators, J. Joe Bauxar and Paul L. Cooper, noted the presence of a number of shallow depressions, suggesting house pits, scattered over the grass- and buckbrush-covered surface of the terrace to the east and south of the detrital layer. Since Bauxar and Cooper could detect no artifact material in association with the depressions, they were unable to tell whether the sunken areas were house pits or were simply partially filled craters made by overthrown trees.

The site, designated 32SN3 in the survey records, was next briefly examined by members of the Missouri Basin Project field party, under my supervision, at the end of May and in the latter part of June 1952. The specimen material acquired on these occasions at the original find-spot consisted, in toto, of 2 small rim sherds and 14 small body sherds, a broken chipped stone projectile point, and 2 unworked flakes. Some of the depressions were scrutinized, and they were again regarded as of equivocal origin. Considering the favorable geographic situation and the promising condition of the site—on a terrace lying immediately above the wooded flood plain of the river and below sheltering bluffs, in a tract of open tight sod which apparently had never been broken by the moldboard plow—and the prima-facie evidence that this was a pottery-bearing campsite, if not a semipermanent townsite of aboriginal provenience in an archeologically unknown locality, I was impelled to obtain permission from Oscar Hintz, the landowner, to test the site, and possibly excavate it in part, at the earliest opportunity.

The Hintz site, named for its cooperative owner, lay somewhat above and below 1,424.3 ft. mean sea level, the elevation of our datum stake as determined by a Bureau of Reclamation survey party. Accordingly, the site lay about 8 feet below the top of the conservation storage pool, and approximately 30 feet below the top of the flood control storage pool level, of the Jamestown Reservoir. The Hintz site was inundated the first or second spring after the dam was closed, early in 1954.

## EXCAVATION PROCEDURE

Archeological excavations were made at the Hintz site sporadically between June 30 and September 26, 1952, and between June 9 and June 23, 1954. A grid of 5-foot intervals, oriented on magnetic north, was imposed over the site, and six connected or separate excavation units of varying horizontal and vertical dimensions—designated XU1 through XU4, XU16, and XU17—were opened at the north end of the site, in an area of about one-quarter acre (pl. 27). In addition, 19 scattered test pits and test excavations—labeled XU5 through XU15, XU18, and XU19 through XU25—were put down at relatively low spots or at places marked by artifact materials, suggesting the possible existence of habitation remains, in an area comprising about 4 acres. All the excavation units except XU17 were worked out in 3-foot or 5-foot columns and in blocks ranging from 0.15 to 1.0 foot in depth below the sod layer, which was stripped off to an average depth of 0.2 foot and was disposed of before each column was dug. XU17, a subcircular excavation with a south-southeast extension, which lay east and west of XU4 (a north-south exploratory trench connecting XU2 and XU3), was excavated in four quadrants varying from 0.2



tz Site, 32SN3

N
BLUFF
XU 25
50
100
FEET
FLOOD PLAIN
RIVER
14
XU 15
BLUFF
XU 18

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5.

to 1.0 foot in depth, in order to uncover as quickly as possible the circular floor plan and entryway of House 4 (Feature 34). In the case of each excavation unit, the subsod, hard, compact, artifact- and debris-charged humus and the underlying shaly sand were loosened with sharp shovels and mattocks; the constructional features were exposed and, in appropriate instances, were cored out with trowels and handpicks. All the excavated earth was passed through or over screens of 3/8-inch mesh, so as to free the cultural materials from the tenacious matrix. This technique resulted in the virtually complete recovery of the excavated specimens. Some classes of material, notably pottery sherds and faunal remains, are proportionately high per cubic foot of turned earth as compared to yields of many far richer excavated sites in the Northern Plains where the matrix was not sifted, or was sifted only in part.

The maximum horizontal dimensions and ranges of depth of the 25 excavation units opened in 1952 and 1954, and the nature and quantity of their inclusive contents, are given in sequential order in the accompanying chart (table 1). The total count of specimens in the "artifact inventory" category obtained from the excavation units numbers, 11,976 individual items; and the total count of specimens in the "refuse materials" category returned from the excavation units amounts to 188 lots and 18,503 individual items. The bulk of the faunal remains—unidentifiable fragments of bones and teeth—were enumerated and then discarded in the field. All the other specimens were transported to the laboratory and were there processed and cataloged. The locations of the 25 excavation units are shown in figure 27.

The deep test trench, noted under XU1 in table 1, measured 13 feet in length by 5 feet in width by 7.1 feet in maximum depth. It disclosed the following stratified deposits from the surface downward (south wall of test, 5 feet west of southeast corner stake, depth 6.75 feet) : humus, 0.8 foot; dark-stained shaly sand, 1.6 feet; buff-colored sandy clay with an admixture of flaky shale, 1.5 feet; and five dark-colored lenses (buried soils?) varying from 0.1 to 0.2 foot in thickness, each separated by layers of clay-shale, shale-sandy clay, sand, and shale ranging from 0.3 foot to 1.05 feet in thickness each. Only the uppermost 2.5 feet of the deposits—humus and underlying dark-stained shaly clay—yielded cultural materials. (A single animal bone, found at a depth of 6.5 feet below the surface, is to be regarded as of "natural" rather than cultural origin.) The positive and negative findings in this test, the only deep sounding taken at the Hintz site, permit the inferences that but one pottery-bearing occupation existed in this portion of the terrace and that the occupation occurred late in the history of the cut-and-fill terrace.

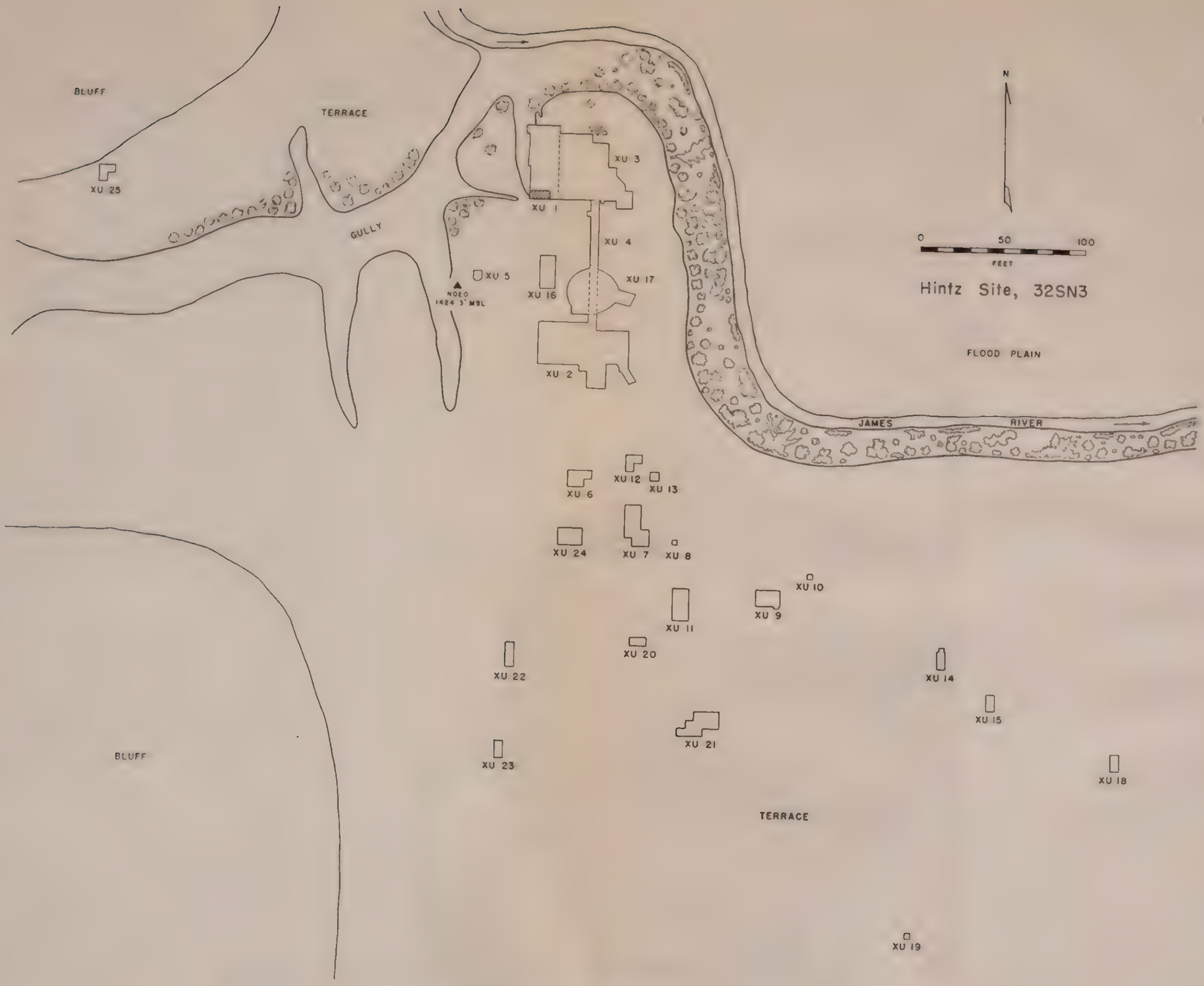
BLUFF
TERRACE
XU 25
GULLY
XU 3
XU 1
XU 4
XU 5
NOEO
1424 3' MSL
XU 16
XU 17
XU 2
N
0
50
100
FEET
Hintz Site, 32SN3
FLOOD PLAIN
JAMES
RIVER
XU 6
XU 12
XU 13
XU 24
XU 7
XU 8
XU 10
XU 9
XU 11
XU 20
XU 22
XU 14
XU 15
XU 21
XU 23
BLUFF
XU 18
TERRACE
XU 19

Figure 27.—Map of the Hintz site, showing the locations of excavation units, XU1–XU25.

TABLE 1.—*Dimensions and contents of XU1–XU25, Hintz site*

(Note: Measurements are given in feet and tenths of a foot.)

| XU No. | Max. horiz. dimensions | | Ranges in depth below surface [a] | Settlement features | Artifact inventory | | | | | | Refuse materials | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Length | Breadth | | | Metal | Pottery | | Stone | Bone and tooth | Shell | Chipping debris | Bone-working debris | Minerals | Faunal remains | Vegetal remains | | |
| | | | | | | Rim, near-rim, and shoulder sherds | Body sherds and others | | | | | | | | Wood | Charcoal | Misc. |
| 1 | 45 | 20 | 0.2–2.2 (except for one deep test trench at south end of XU1—see discussion in text). | Trash dump; 2 unprepared hearths (F1 and F5 [c]); 1 pair of isolated post holes; 2 concentric arcs of post holes belonging to House 2 (F25), mainly exposed in XU3, which is contiguous with XU1 on the east. | 3 | 666 | 3, 913 | 49 | 12 | | 285 | | 1 lot, 1 ind. [b] | 13 lots, 3,319 inds. | 2 lots | 32 lots | 1 lot |
| 2 | 60 | 40 | 0.2–3.45 | Floor plan of House 1 (F17); floor plan of House 3 (F27); 3 lines of post holes, a pocket cache pit, and a boulder anvil of a possible, partly excavated lodge (undesignated); 1 cluster of boulders. | 3 | 426 | 2, 295 | 89 | 9 | 6 | 726 | 1 | | 14 lots, 5,839 inds. | 2 lots | 22 lots | |
| 3 | 45 | 45 | 0.2–1.5 | Floor plan of House 2 (F25); sweat lodge (F35); 2 unprepared hearths (F31 and F36); 1 cluster of boulders. | | 416 | 966 | 87 | 11 | | 584 | | | 21 lots, 2,912 inds. | 4 lots | 27 lots | 2 inds. |
| 4 | 45 (30 ft. of XU4 has been incorporated in XU17). | 5 (With a west offset, 3 ft. in length by 2 ft. in width). | 0.2–1.5 | 1 unprepared hearth (F20). | | 147 | 385 | 25 | 1 | | 144 | 1 | | 3 lots, 621 inds. | | 5 lots | |
| 5 | 5.5 | 5 | 0.2–1.2 | None | | | 5 | 2 | | | 4 | | | 15 inds. | | | 1 ind. |
| 6 | 15 | 10 | 0.2–0.9 | None | | 1 | 18 | 2 | | | 3 | | 1 ind. | 38 inds. | | | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 25 | 15 | 0.2–1.1 | 1 basin-shaped stone-lined hearth (F47); 1 boulder. | | 27 | 174 | 9 | | | 24 | | | 103 inds. | | | |
| 8 | 3 | 3 | 0.2–0.7 | None | | | | 1 | | | | | | 32 inds. | | | |
| 9 | 15 | 10.75 | 0.2–1.3 | 2 fragmentary boulders. | | 6 | 30 | 7 | | | 8 | | | 66 inds. | | | |
| 10 | 3 | 3 | 0.2–1.2 | None | | 1 | | | | | 2 | | | 9 inds. | | | |
| 11 | 20 | 10 | 0.2–1.0 | 1 cache of retouched flakes (F43); 1 boulder | 2 | 54 | 271 | 16 | | | 28 | | | 106 inds. | 2 inds. | 1 ind. | |
| 12 | 10 | 10 | 0.2–2.0 | None | | 5 | 29 | 1 | | | 4 | | | 70 inds. | | 3 inds. | |
| 13 | 5 | 5 | 0.2–1.2 | None | | 1 | 9 | | | | 2 | | | 9 inds. | | | |
| 14 | 12.5 | 5 | 0.2–1.2 | None | | | 17 | | | | 6 | | | 2 inds. | | | |
| 15 | 10 | 5 | 0.2–1.3 | None) | | | 3 | | | | 1 | | | 8 inds. | | | |
| 16 | 20 | 10 | 0.2–1.4 | Floor plan of bower (?) and fireplace (F48 and F37) | | 55 | 253 | 5 | | | 41 | | | 505 inds. | 1 lot | 1 lot | 1 lot |
| 17 | 42 | 30 | 0.2–ca.3.0 | Floor plan of House 4 (F34) | | 209 | 506 | 63 | | | 373 | | | 6 lots, 2,206 inds. | 2 lots | 7 lots, 3 inds. | |
| 18 | 10 | 5 | 0.2–1.6 | None | | 6 | 107 | | | | 29 | | | 45 inds. | 1 ind. | | |
| 19 | 3 | 3 | 0.2–1.4 | None | | | | | | | 4 | | | | | | |
| 20 | 10 | 5 | 0.2–0.8 | None | | 3 | 6 | | | | 3 | | | 16 inds. | | | |
| 21 | 25 | 15 | 0.2–0.75 | 1 unprepared hearth (F44) | | 34 | 110 | 4 | | | 12 | | | 93 inds. | | 2 lots | |
| 22 | 15 | 5 | 0.2–0.7 | None | | | 5 | 1 | | | 2 | | | 9 inds. | | 1 ind. | |
| 23 | 10 | 5 | 0.2–0.7 | None | | 1 | 2 | | | | 1 | | | 9 inds. | | | |
| 24 | 15 | 10 | 0.2–1.0 | 1 stone-platform hearth (F45); 1 unprepared hearth (F46) | | 16 | 98 | 4 | | 1 | 6 | | | 63 inds. | | 1 lot | |
| 25 | 10 | 10 | 0.2–0.4 | None | | 41 | 244 | 2 | | | 91 | | | 4 inds. | | | |
| Total counts of specimens by classes | | | | | 8 | 2,115 | 9,446 | 367 | 33 | 7 | 2,586 | 2 | 1 lot, 2 inds. | 77 lots, 16,099 inds. | 11 lots, 3 inds. | 97 lots, 8 inds. | 2 lots, 3 inds. |
| Total counts of specimens by categories | | | | | 11,976 individual items | | | | | | 188 lots and 18,503 individual items | | | | | | |

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[a] Depths measured at southeast corner stakes, or at bottom of small features.
[b] ind.=individual specimen.

[c] F1 and F5 stand for "Feature 1" and "Feature 5." Similar abbreviations are used throughout the present paper.

Specimen materials collected in 1954 from the surface of areas exposed by the 1952 excavations and from the edge of the terrace and the banks of the gully at the north end of the site, which had been sheared off here and there by bulldozers in clearing the valley of vegetation, include 1 piece of metal, 39 small rim and near-rim sherds, 1 handle fragment and 111 small body sherds, 6 complete or fragmentary chipped or battered stone artifacts, 1 core, 17 unworked flakes, 1 animal bone, and 13 mussel-shell fragments.

## SETTLEMENT FEATURES

Seven major constructional features incorporating several kinds of lesser features, an accretionary feature, and 20 scattered minor constructional or utilized features were uncovered, in whole or in part, in 11 of the 25 excavation units. The settlement features are described below according to eight inferred functional types: house, bower, sweat lodge, trash dump, drying rack, open hearth, tool cache, and boulder anvil.

### HOUSES

(4, and part of another)

The floor plans of four small or medium-size domestic dwellings (houses or lodges), each having a long, narrow entryway attached on the east or southeast and possessing varied floor and subfloor features, were exposed by excavation at the north end of the Hintz site. In addition, part of the floor plan of a circular dwelling, with interior features, was uncovered just beyond the terminus of the entryway of one of the other dwellings. The fully excavated dwellings, designated Houses 1 to 4, may be conveniently described in outline form. The partial (undesignated) house, just mentioned, will be described along with House 3, with which it was seemingly connected.

HOUSE 1 (F17) in XU2; figure 28 and plate 28, *a*.

*Shape:* Small, circular; 16.0 feet in mean diameter.

*Depth of pit:* Shallow, unfaced native earth; 1.2 feet at perimeter, 2.4 feet at center, below ground surface.

*Framing* (inferred from excavated post holes defined by the presence of wood or charcoal or, more often, by fill softer than the surrounding matrix): Four central supporting posts (F7–8–21, 22, 23, and 24) which ranged from 0.35 to 0.5 foot in diameter and were on radii of 1.55 to 4.85 feet from the center, with the southwest corner support consisting of a cluster of three posts, two of which (F7 and F8) possibly representing replacements or auxiliary posts for the earlier post (F21); and two rings of peripheral posts—a ring of 21 interior supporting posts ranging from 0.2 to 0.35 foot in diameter and spaced from 1.3 to 3.5 feet apart, on a mean radius of 6.15 feet from the center, with a divergence of from 1.0 foot to 1.1 feet; and a ring of 19 exterior posts ranging from 0.25 to 0.4 foot in diameter and spaced from 1.9 to 2.9 feet apart, on a mean radius of 8.0 feet from the center, with a divergence of from 0.1 to 0.9 foot. Eight extra posts in the northwest and northeast quadrants, ranging from 0.25 to 0.35 foot in diameter, apparently represented brace, replacement, partition, or supplementary roof-support posts.

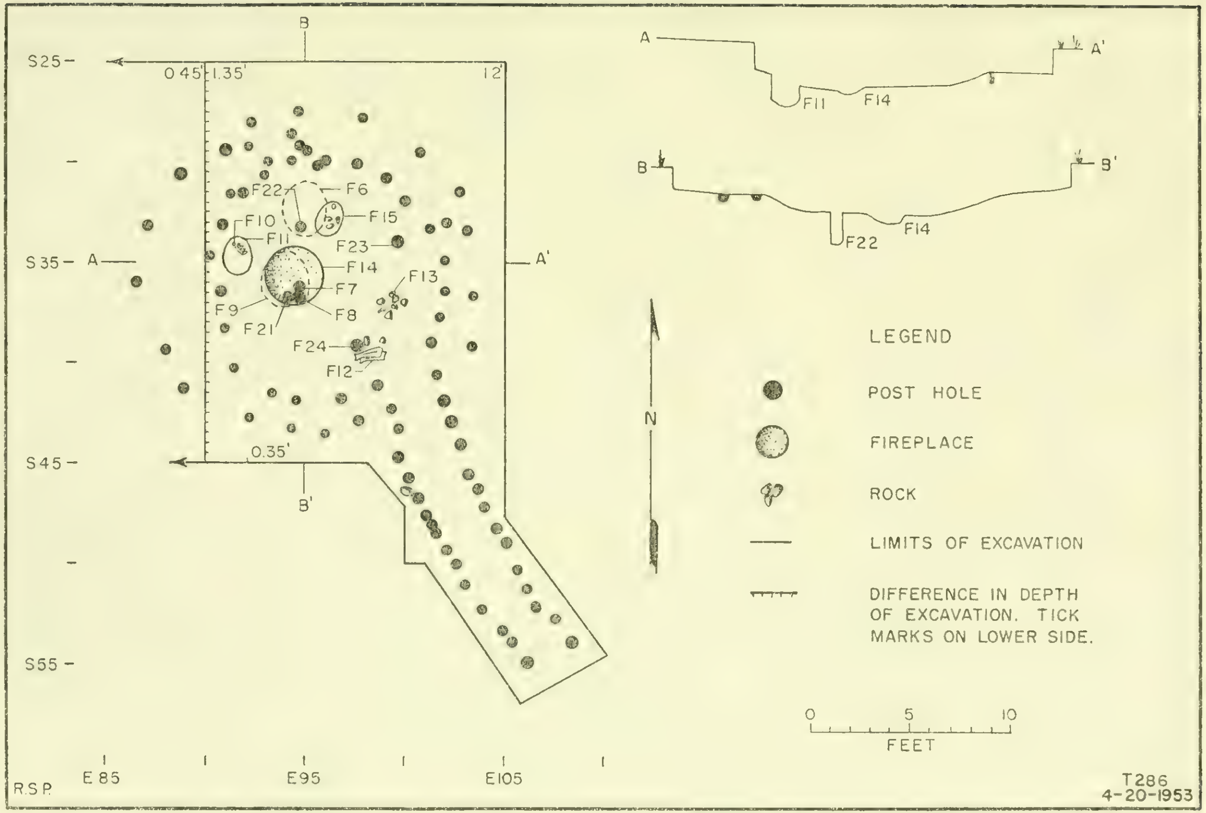
B
S25
0.45'
1.35'
12'
F22
F6
F15
F10
F11
F23
A
S35
F14
F7
A'
F13
F9
F21
F8
F24
F12
S45
0.35'
B'
S55
E 85
E95
E105
R.S.P.
A
F11
F14
A'
B
F22
F14
B'
N
LEGEND
POST HOLE
FIREPLACE
ROCK
LIMITS OF EXCAVATION
DIFFERENCE IN DEPTH OF EXCAVATION. TICK MARKS ON LOWER SIDE.
0
5
10
FEET
T286
4-20-1953

FIGURE 28.—Plan and cross sections of House 1 (F17) in XU2, Hintz site.

*Entrance:* Opening on southeast. Long, narrow entryway or vestibule indicated by two approximately parallel rows of 27 closely spaced posts, 13 on one side and 14 on the other, ranging from 0.25 to 0.4 foot in diameter, with the rows spaced from 2.1 to 3.1 feet apart, and extending some 14.5 feet southeast of the entrance.

*Floor:* Tramped, slightly basin-shaped bottom of pit mantled with refuse.

*Fireplace:* Single, off-center, oval basin (F15) measuring 1.8 feet in maximum length by 1.3 feet in maximum width by 0.4 foot in maximum depth, filled with fine light-gray wood ash, burned sandy clay, fire-fractured cobbles, and broken unburned animal bones and mussel-shell fragments.

*Subfloor cache pits:* Four straight-sided cache pits in the center and north half of the floor area. F6, oval, measuring 2.65 x 2.25 x 1.7 feet (maximum length, maximum breadth, and maximum depth), filled with a mixture of dark sand and charcoal flecks, containing pottery sherds, unaltered flakes, and animal-bone fragments; F9, oval, measuring 2.9 x 2.4 x 1.5 feet, filled with a mixture of dark sand and charcoal flecks, yielding sherds, unmodified flakes, and broken animal bones; F11, oval, measuring 2.0 x 1.45 x 1.7 feet, filled with soft, medium-dark sand containing four articulated bison vertebrae (F10), animal-bone fragments, etc.; and F14, circular, measuring 2.95 feet in maximum diameter and 0.45 foot in depth (the upper part was scalped before the cache was recognized as such), filled with light-brown sandy clay which was lacking in artifact and refuse materials. F6 and F9, indicated by dashed lines in figure 28, respectively underlay the firepit (F15) and the circular cache pit (F14), and hence were antecedent to the other two cache pits (F11 and F14). Noncontemporaneous storage pits within or adjacent to dwelling structures, presumably dug during consecutive or nonconsecutive seasons of inhabitation, have been observed repeatedly at occupation sites excavated in the Central and Northern Plains.

*Other features:* A pair of bone hoes (F12), one complete, above, and one proximal fragment, below, and both made from left scapulae of mature bison, with the anterior and posterior borders sheared off and with an irregular perforation near the center of the body, in each case, on or near the floor in the southeast quadrant; two cobbles (undesignated), just north of F12 and approximately at the same level; and one group of osteological remains of bison (F13) including a horn core, long-bone fragments, a vertebra, foot bones, etc., on or near the floor just northeast of F12.

HOUSE 2 (F25) in XU3; figure 29 and plate 28, *b*.

*Shape:* Medium-size, circular; 26.4 feet in mean diameter.

*Depth of pit:* Shallow, unfaced native earth; 0.7 foot to 1.05 feet below ground surface.

*Framing* (inferred from excavated postholes defined by the presence of wood or charcoal or, more often, by fill softer than the surrounding matrix): Four pairs of central supporting posts (F2 and F3 designate one of two pairs, each; the other two pairs are undesignated) which varied from 0.35 to 0.75 foot in maximum diameter and were on radii of from 2.6 to 5.0 feet from the center (calculated by drawing a cord from the center to the midpoints between the pairs of posts); and two rings of peripheral posts—a ring of 18 interior supporting posts ranging from 0.2 to 0.8 foot in diameter and spaced from 2.3 to 4.2 feet apart (disregarding the 9.7-foot gap in the northeast quadrant where intervening postholes could not be found) on a mean radius of 10.7 feet from the center, with a divergence of from 0.2 to 0.65 foot; and a ring of 62 exterior supporting posts ranging from 0.25 to 0.8 foot in diameter and spaced from 0.8 foot to

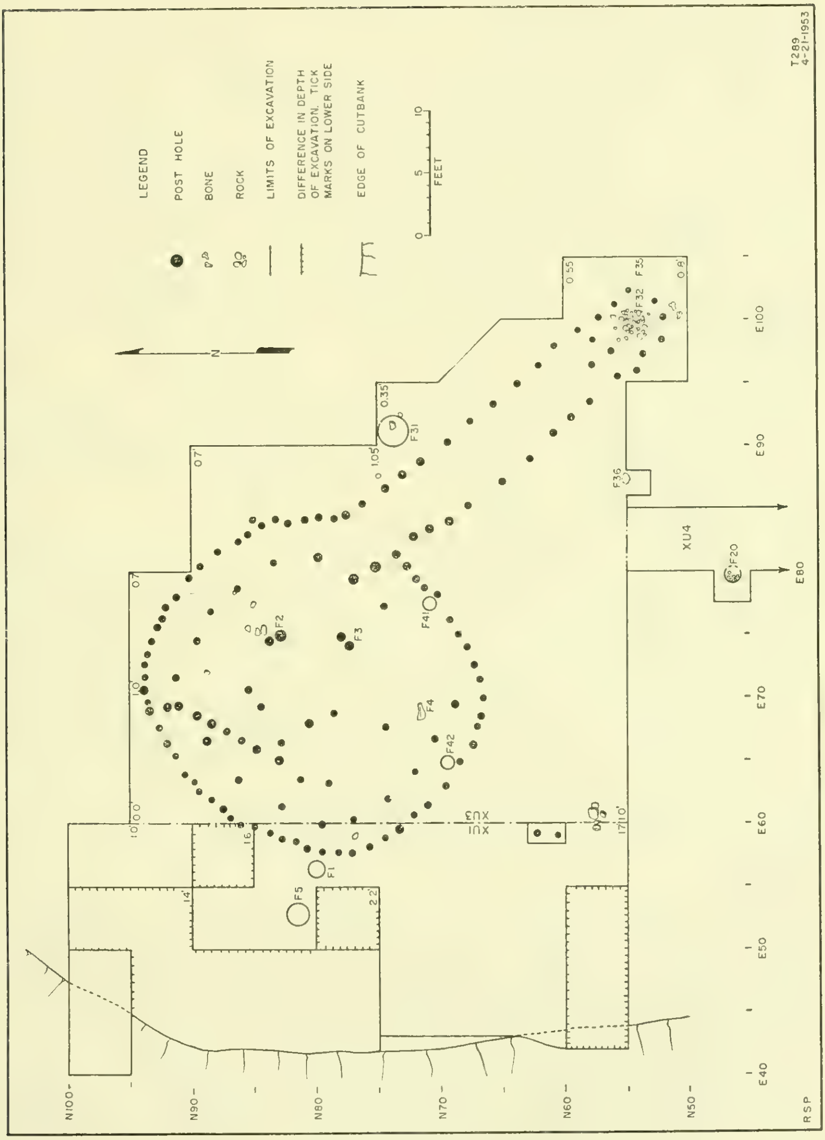
LEGEND
POST HOLE
BONE
ROCK
LIMITS OF EXCAVATION
DIFFERENCE IN DEPTH OF EXCAVATION. TICK MARKS ON LOWER SIDE
EDGE OF CUTBANK
0 5 10
FEET
N
T289
4-21-1953
F2
F3
F4
F41
F42
F1
F5
F31
F32
F35
F36
F20
XU3
XU1
XU4
N100
N90
N80
N70
N60
N50
E40
E50
E60
E70
E80
E90
E100
RSP

FIGURE 29.—Plan of House 2 (F25) in XU3, and of contiguous trash dump in XU1, Hintz site.

2.3 feet apart, except at the entrance, on a mean radius of 10.6 feet from the center, with a divergence of from 0.1 to 1.0 foot. One S-shaped line of 10 extra posts varying from 0.3 to 0.6 foot in diameter, in the northwest quadrant, presumably represented a partition; one extra post measuring 0.8 foot in diameter, just inside the entrance, in the southeast quadrant, and one extra post measuring 0.3 feet in diameter, just outside the outer ring in the northeast quadrant, may have been brace, replacement, or auxiliary roof-support posts.

*Entrance:* Opening on the southeast. Long covered entryway or vestibule manifested by two nearly parallel rows of 21 unevenly spaced posts, 11 on one side and 10 on the other, usually defined by fill softer than the surrounding matrix, and ranging from 0.25 to 0.55 foot in diameter, with the rows spaced from 4.5 to 4.9 feet apart, and running approximately 23.0 feet southeast of the entrance and terminating in a small circular sweat lodge (F35), described hereinafter. Two extra posts inside the entryway and one extra post just beyond the terminus of the entryway, ranging from 0.3 to 0.35 foot in diameter, suggest interior and exterior partitions.

*Floor:* Nearly level, untramped (?) bottom of pit mantled with sparse refuse.

*Fireplace:* None found.

*Subfloor cache pits:* Two straight-sided, circular pocket cache pits, respectively in the southeast and southwest quadrants of the floor area, just inside the outer ring of peripheral studs. Both F41, measuring 1.05 feet in diameter and 1.45 feet in depth, and F42, measuring 1.0 foot in diameter and 1.15 feet in depth, were filled with soft gray shaly sand but contained no artifact or refuse materials.

*Other features:* One unworked complete though fragmented scapula of mature bison (F4), found lying horizontally on or near the floor in the southwest quadrant of the floor area; a cluster of four rock fragments (undesignated), found on or near the floor in the northeast quadrant, may have represented a slightly disturbed stone-platform hearth; one rock fragment, found adjacent to a posthole in the northeast quadrant, may have represented a post wedge; two other rock fragments—one in the northeast quadrant and one in the southwest quadrant—are of indeterminate significance and may have been accidental inclusions.

House 3 (F27) in XU2; figure 30 and plate 29, *a*.

*Shape:* Medium-size, circular; 23.4 feet in mean diameter.

*Depth of pit:* Shallow, unfaced native earth; 1.0 foot to 1.4 feet below ground surface.

*Framing* (inferred from excavated postholes defined by the presence of wood or charcoal or, more often, by fill softer than the surrounding matrix): Four central supporting posts (paired in northwest and southwest quadrants), which varied from 0.45 to 0.75 foot in diameter and were on radii of from 5.2 to 7.0 feet from the center of the floor (calculated—in the case of each of the paired posts—by drawing a cord from the center to the midpoint between the pairs of posts); and two rings of peripheral posts—a ring of 11 interior supporting posts (one of which was bordered by three rock fragments, evidently post wedges) ranging from 0.3 to 0.7 foot in diameter and spaced from 3.2 to 8.0 feet apart, on a mean radius of 8.2 feet from the center, with a divergence of from 0.2 foot to 1.3 feet; and a ring of 49 exterior supporting posts varying from 0.3 to 0.6 foot in diameter and spaced from 0.8 foot to 3.1 feet apart (except at the entrance and in the gap in the southwest quadrant where a small green ash was removed), on a mean radius of 11.7 feet from the center, with a divergence of from 0.1 to 0.9 foot. One northwest–southeast line of six extra posts,

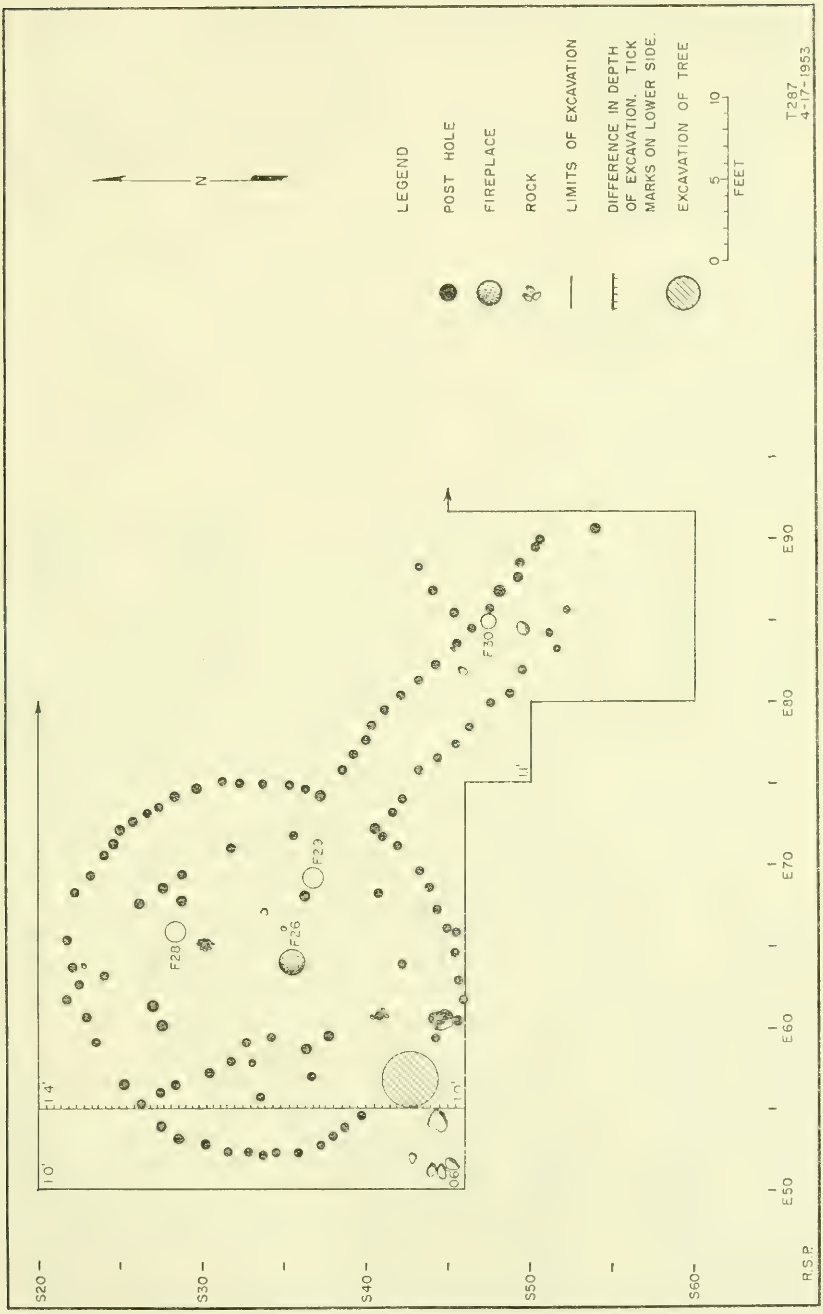
N
LEGEND
POST HOLE
FIREPLACE
ROCK
LIMITS OF EXCAVATION
DIFFERENCE IN DEPTH OF EXCAVATION. TICK MARKS ON LOWER SIDE.
EXCAVATION OF TREE
0
5
10
FEET
T287
4-17-1953
F30
F23
F26
F28
1.4'
1.0'
1.0'
1.1'
0.60
S20
S30
S40
S50
S60
E50
E60
E70
E80
E90
R.S.P.

FIGURE 30.—Plan of House 3 (F27) in XU2, Hintz site.

varying from 0.25 to 0.4 foot in diameter, presumably represented a partition, and one extra post in the inner ring of posts, measuring 0.7 foot in diameter, in the northeast quadrant, and one extra post in the center ring of posts, measuring 0.35 foot in diameter, in the southeast quadrant, may have been brace or auxiliary roof-support posts.

*Entrance:* Opening on the southeast. Long entryway or vestibule marked by 2 nearly parallel rows of 17 unevenly spaced posts, 9 on one side and 8 on the other, ranging from 0.3 to 0.4 foot in diameter, with the rows spaced from 4.0 to 4.4 feet apart and extending some 12.0 feet south of the entrance and terminating in what appeared to be a partially exposed circular house (undesignated), described below.

*Floor:* Nearly flat, tramped bottom of pit mantled sparingly with refuse.

*Fireplace:* Single, off-center, circular basin (F26) measuring 1.65 feet in diameter and 0.3 foot in maximum depth, filled with a mixture of gray ash and sand, but lacking artifact and refuse materials.

*Subfloor cache pits:* Two pocket cache pits, one in the northeast quadrant (F28), measuring 1.2 feet in maximum diameter and 1.0 foot in depth, and one in the southeast quadrant (F29), measuring 1.4 feet in maximum diameter and 1.0 foot in depth. Both contained gray shaly sand. The latter yielded some pottery sherds, unmodified flakes, and animal bones, but the former lacked artifact and refuse materials.

*Other features:* A cluster of boulder fragments (undesignated), just south of F28, possibly represented what might be called a stone trivet for holding a heated cooking pot; a large battered granite boulder-anvil (undesignated), in the southeast quadrant, near the outer ring of posts; and three rock fragments—two near the firepit and one near the perimeter of the outer ring of posts, at the north edge of the dwelling—which may have been accidental inclusions. Also in XU2, at the southeast terminus of the House 3 entryway, were found five postholes ranging from 0.25 to 0.4 foot in diameter, forming an arc, and two irregular lines of seven and three posts, ranging from 0.25 to 0.65 foot in diameter, defined by fill softer than the surrounding matrix. The posts may have represented respectively an exterior ring of supporting posts and two partitions of another (undesignated) medium-size circular dwelling about 23 feet in diameter. This inference is strengthened by the finding, within the arc, of a pocket cache pit, 0.95 foot in maximum diameter and 1.2 feet in depth, filled with gray shaly sand (but lacking artifact and refuse materials), and of a granite boulder-anvil, smaller but otherwise comparable to the one found in House 3. Regrettably, there was not time to work out the floor plan of this possible house more fully and in convincing detail.

HOUSE 4 (F34) in XU17; figure 31 and plate 29, *b*.

*Shape:* Medium-size, circular; 25.1 feet in mean diameter.

*Depth of pit:* Shallow, unfaced native earth; 0.6 foot to 1.15 feet below ground surface.

*Framing* (inferred from excavated postholes defined by the presence of fill softer than the surrounding matrix): Four central supporting posts which varied from 0.4 to 0.55 foot in maximum diameter and were on radii of from 4.5 to 5.9 feet from the center; and two rings of peripheral posts—a ring of 25 interior supporting posts ranging from 0.25 to 0.45 foot in diameter and spaced from 1.5 to 3.5 feet apart (except at the entrance), on a mean radius of 9.75 feet from the center, with a divergence of from 0.1 foot to 1.35 feet; and a ring of 62 exterior supporting posts varying from 0.25 to 0.45 foot in diameter and spaced from 0.7 foot to 2.0 feet apart (except at the entrance), on a mean radius of 12.55 feet from

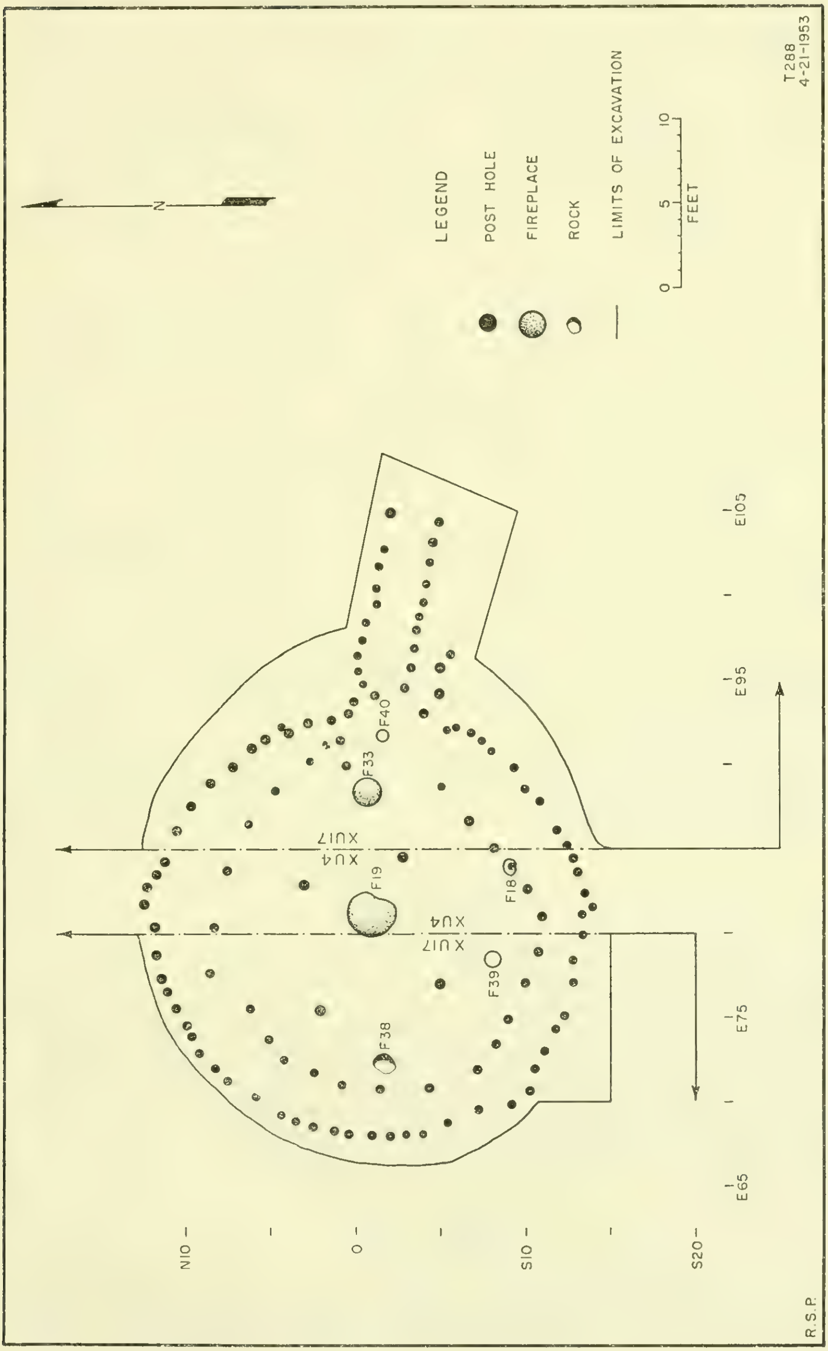
N
LEGEND
POST HOLE
FIREPLACE
ROCK
LIMITS OF EXCAVATION
0
5
10
FEET
T288
4-21-1953
F40
F33
F19
F18
F39
F38
XU17
XU4
N10
0
S10
S20
E65
E75
E95
E105
R.S.P.

FIGURE 31.—Plan of House 4 (F34) in XU17, Hintz site.

the center, with a divergence of from 0.1 foot to 1.0 foot. Two posts on the east side—one between the inner and outer peripheral rings, the other beyond the outer ring at the entrance—each of which measured 0.3 foot in diameter, and an irregular line of three posts, measuring from 0.3 to 0.4 foot in diameter and roughly paralleling the south line of the entryway supporting posts, just outside the outer ring of posts, may have represented brace, auxiliary roof-support, or partition posts.

*Entrance:* Opening on the east. Long entryway or vestibule indicated by two nearly parallel, albeit undulating rows of 21 rather evenly spaced posts, 11 on one side and 10 on the other, ranging from 0.2 to 0.35 foot in diameter, with the rows spaced from 2.5 to 3.0 feet apart and running about 11.8 feet east-southeast of the entrance.

*Floor:* Nearly flat, untramped (?) bottom of pit mantled with some refuse.

*Fireplace:* One central, subcircular basin (F19) measuring 2.8 feet in maximum diameter and 0.4 foot in maximum depth, filled with a mixture of burned shaly sand and light-gray ash containing an incised cuboid pipe of limestone and a mussel shell; another subcircular basin (F33) measuring 1.75 feet in maximum diameter and 0.3 foot in depth, filled with a mixture of fire-reddened sand and gray ash, directly east of the central fireplace; and a third subcircular fireplace (F18) measuring 1.0 foot in maximum diameter and 0.25 foot in depth, filled with light-gray ash underlain by burned shaly sand, in the southeast quadrant. This feature contained the hole of one of the inner ring of peripheral supporting posts. Hence, it may be inferred that this was an open hearth which antedated the construction of the dwelling.

*Subfloor cache pits:* Two pocket cache pits, one in the southwest quadrant (F39), measuring 0.9 foot in maximum diameter and 1.05 feet in depth, and one in the southeast quadrant (F40), measuring 0.65 foot in maximum diameter and 2.0 feet in depth. Both contained soft gray shaly sand but no artifacts or refuse materials.

*Other features:* One granite boulder-anvil (F38), battered on the upper surface and measuring 1.25 feet by 1.1 feet by 1.3 feet, was found lying on the floor directly west of the central fireplace and just inside the inner ring of supporting posts.

### BOWER

In XU16, at depths ranging from 0.5 foot to 1.1 feet below the surface, were found 11 postholes, ranging from 0.35 to 0.45 foot in diameter; a subcircular fireplace (F37), measuring 2.1 feet in maximum diameter and 0.4 foot in depth, which contained shaly sand, gray ash, and three large animal-bone fragments; and a cluster of three rock fragments and three individual rock fragments (fig. 32). While the postholes formed no clearly discernible geometric pattern, their distribution around the fireplace suggests that they represented the supporting posts for the cross-stringers and rafters of an open-sided bower (F48), which may have had a smokehole directly above the fireplace. The rock fragments were possibly accidental inclusions in the matrix.

### SWEAT LODGE

Just beyond the terminus of the entryway of House 2, in XU3, were found, at a depth of from 0.6 to 0.8 foot below the surface, eight postholes which formed an almost perfect circle around a cluster of fragmented cobbles (fig. 29). The posts, varying from 0.2 to 0.35 foot in diameter and spaced from 1.55 to 3.1 feet apart, were on a mean radius of 2.65 feet from the center, with a divergence

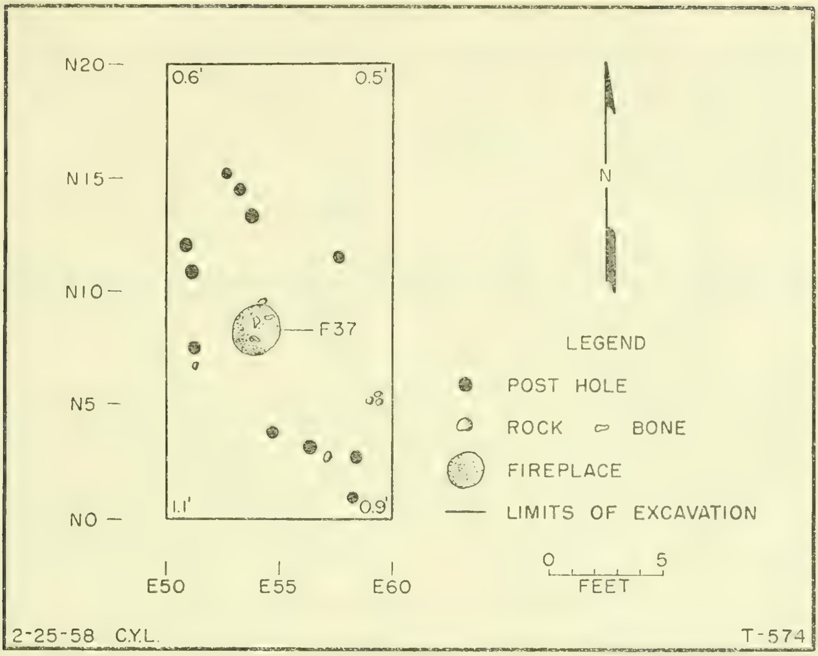

Figure 32.—Plan of bower (F48) in XU16, Hintz site.

of from 0.05 to 0.75 foot. The somewhat disturbed cluster of about 43 broken cobbles was interspersed with and underlain by charcoal-stained sand. The condition of the rocks in this feature (F32) suggested that they had been fractured both by direct contact with fire and by sudden expansion when water was poured over the heated rocks to produce steam. Following this interpretation, the surrounding posts appeared to be the roof posts of a small sweat lodge, designated Feature 35. The absence of artifact and refuse materials from this feature seems to substantiate the inferred purpose of the structure.

### TRASH DUMP

The area explored in XU1—to the east, north, and south of the original findspot (figs. 27 and 29)—was found to contain arcs of the interior and exterior supporting posts of House 2 (F25), already discussed, a pair of isolated postholes and two hearths which will be described subsequently, and moderate amounts of artifact and refuse materials, between 0.2 foot and 2.2 feet below the surface. The heterogeneous character and generally fragmentary condition of the artifacts recovered from XU1, the absence of major constructional features within the area, and the juxtaposition of midden to House 2 (F25)—all indicate that the area was a trash dump used by the occupants of the nearby dwelling and also perhaps to some extent by people who inhabited the other lodges to the south.

### DRYING RACK (?)

A pair of postholes near the south end of XU1 (undesignated, see fig. 29), measuring 0.4 and 0.3 foot in diameter and set 1.65 feet apart, the one almost directly north of the other, may have been the supporting posts of a rack used for aerating skins prepared for clothing and other uses, or for drying comestibles.

### OPEN HEARTHS (9)

Hearths of two classes and four types, numbering nine examples in all, were unearthed at the Hintz site. They occurred beyond the distinguishable limits of major constructional features, or in the trash dump, and hence they are dubbed "open" hearths. Actually, some or all of them may have been associated with perishable structures, e.g., wikiups, skin tipis, lean-tos. They include the following.

#### UNPREPARED HEARTHS

The seven hearths in this class are of two types:

*Lightly fired hearths:* F1, subcircular, measuring 1.55 feet in maximum diameter and 0.2 foot in depth, was found at a depth of 0.4 foot below the surface in XU1 (fig. 29). It contained a mixture of sherds, charred wood, fine gray ash, and brown sand. F20, circular, measuring 1.3 feet in diameter and 0.2 foot in depth, was uncovered at a depth of 0.7 foot below the surface in a west extension of XU4 (fig. 29). It held a mixture of gray ash and charcoal fragments, fire-cracked rocks, and broken animal bones. And F46, oval, measuring 1.7 feet in maximum length by 0.9 foot in maximum breadth by 0.15 foot in maximum depth, was exposed at a depth 0.5 foot below the surface in the south-central part of XU24 (fig. 27). It yielded a mixture of brown silt, burned bone fragments, and a few tiny sherds. The enveloping matrix produced small sherds and bone fragments.

*Heavily fired hearths:* F5, subcircular, measuring 2.0 feet in maximum diameter and 0.35 foot in depth, occurred at a depth of 0.4 foot below the surface in XU1, some 3.8 feet northwest of F1, center-to-center (fig. 29). It contained a mixture of gray ash and charcoal underlain by fire-reddened sand. F31, circular, measuring 2.75 feet in diameter and 0.5 foot in depth, was found at a depth of 1.05 feet below the surface in XU3, a little over 3 feet east of the entryway of House 2 (F25). It yielded gray ash and finely divided charcoal, and one fire-fractured cobble. F36, oval, measuring 0.9 foot in maximum length by 0.6 foot (?) in maximum width by 0.3 foot in depth (fig. 29). It was filled with a mixture of gray ash and shaly sand. F44, subcircular, measuring 1.55 feet in maximum diameter and 0.3 foot in depth, was uncovered at a depth of 0.4 foot below the surface near the center of XU21 (fig. 27). The fill consisted of dark-brown silt intermingled with gray-brown ash, charcoal, and small pieces of charred bone. The matrix surrounding this hearth produced several small sherds and scattered fragments of charred bone.

#### PREPARED HEARTHS

The two hearths in this class were of two types:

*Stone-platform hearth:* F45, an incomplete subcircular cluster of 11 fragments of granite boulders, measuring 1.5 feet in maximum diameter, was exposed at a depth of 0.6 foot below the surface in the northwest corner of XU24, some 6.7 feet northwest of, and 0.1 foot deeper than, F46, previously mentioned (fig. 27). Although no ash and charcoal were found in and among the stones of F45, the shape of the cluster and the condition of the rocks (heat-fractured?) make it all but certain that this feature represented a platform hearth. Bone scrap was found in the surrounding matrix.

*Basin-shaped stone-lined hearth:* F47, a subcircular basin, measuring approximately 4.0 feet in maximum diameter and 0.35 foot in maximum depth, and partially lined with 22 whole or fragmented granite boulders (and possibly by one other boulder fragment found 1.85 feet to the southwest) was uncovered in the southern part of XU7, at a depth of 0.45 foot below the surface (fig. 27).

Several sherds were taken from the hearth fill, but no ash and charcoal were detected in the fill. Perhaps they were swept away by the wind before the hearth was sealed off by silt.

### TOOL CACHE

Two medium-size and four small flakes of semitranslucent, light-brown to dark-brown chalcedony were found in a pocket, measuring 0.4 foot in diameter, near the center of XU11, at a depth of 0.5 to 0.65 foot below the surface. One or two edges of the flakes bear minute use-retouch scars. The presence of the six flakes of homogeneous material in a tiny pit (F43) suggests that the flakes were cached for future use as effective, albeit amorphous, scraping or cutting tools.

### BOULDER ANVILS (9)

A group of five granite boulders exposed in the southwest corner of XU2 near the perimeter of House 3 (F27), just below the surface (fig. 30), one granite boulder uncovered near the center of XU7, at a depth of 0.35 foot below the surface, two fragmentary granite boulders unearthed near the center of XU9, at depths of 0.2 to 0.4 foot below the surface, and one granite boulder exposed near the center of XU11, at a depth of 0.7 foot below the surface (fig. 27), may possibly be identified—like those found in House 3 (F27) and in the adjoining, partially excavated house, and in House 4 (F34)—as anvils for percussion chipping, breaking animal bones for the extraction of marrow (Leechman, 1951, pp. 355–356), and other uses.

## ARTIFACT INVENTORY

A relatively large and varied sample of imperishable artifacts was returned from the Hintz site in 1946, 1952, and 1954. The specimens are enumerated and described below, according to material categories—metal, pottery, stone, bone (and teeth), and shell—and by functional forms within these categories.

### METAL OBJECTS

The eight objects of metal recovered from the Hintz site are economically described, together with their provenience within the site, in table 2.

Four of the items of iron (Nos. 1–4) and one item of spring brass (No. 6) may be regarded, in view of their appearance and provenience, as fragmentary or intact metal knife blades of aboriginal origin, i.e., they were fabricated by the aborigines from stock supplied by direct or indirect White trade. They are plausible elements of the Hintz artifact inventory. On the other hand, the fifth piece of iron, crudely shaped and comparatively thick, with a tapered projection at one end (No. 5), is not identifiable as to function and, at best, is ambiguous as to origin; it may belong to White man's equipage and probably postdates the aboriginal occupation. The two modern ammunition parts (Nos. 7 and 8) are clearly anachronistic as far as the site inventory goes.

TABLE 2.—*Description and provenience of metal objects, Hintz site*

| Item No. | Description | Provenience | |
|---|---|---|---|
| | | Horizontal | Depth below surface, feet |
| 1, 2 | Amorphous pieces of rusted iron, 11 x 9.5 x 1.5 mm. and 20.5 x 15 x 1.5 mm.—fragments of knife blades? | XU1, sq. N55 E55, in matrix of trash dump. | 0.7–1.1. |
| 3 | Amorphous piece of rusted iron, 22.5 x 19 x 1.5 mm.—fragment of knife blade? | XU2, sq. S45 E75, in matrix just inside or outside of House 3 (F27). | 0.2–1.0. |
| 4 | Amorphous piece of rusted iron, 25.5 x 15 x 0.75 mm.—fragment of knife blade? | Area of trash dump (XU1). | Surface. |
| 5 | Rectangular piece of rusted iron, 35 x 12.5 x 3.5 mm., with a tapered corner projection 6.5 mm. in length at one end, apparently roughly shaped by a chisel or saw. Purpose indeterminate. | XU11, sq. S200 E140 | 0.2–0.4. |
| 6 | Subtriangular, slightly contorted piece of spring brass, 53.5 x 24 x 0.75 mm. The edge of the longest side is even and rounded at each end; the edges of the shorter sides are somewhat irregular. Knife blade? | XU2, sq. S35 E105, in matrix just inside or outside of House 1 (F17). | 0.2–0.8. |
| 7 | .22 rim-fire long or long-rifle brass cartridge case. | XU11, sq. S195 E140 | 0.2–0.5. |
| 8 | .38 Smith and Wesson Special lead bullet with copper wash. Probably 158 gr. round-nosed load. Fired in revolver having a right-hand twist with 6 grooves. | XU2, sq. S40 E80, in matrix just outside of House 3 (F27). | 0.2–0.4. |

## POTTERY

Some 11,752 pottery fragments were obtained from the surface and the excavations at the Hintz site. The total sample segregates into these general groupings: Rim-and-lip, near-rim, and shoulder sherds—2,167; body sherds—8,902; appendages—13; and split sherds—670. There are no restored or restorable vessels of any type or size. The nearest approximations to complete vessels are four fairly large composite sherds, i.e., sherds composed of from three to nine smaller pieces. The great bulk of the material consists of small composite and individual sherds, usually weathered and often so thoroughly broken up, particularly in the case of the body sherds, that identification of the surfacing techniques has sometimes been made with trepidation.

On the basis of paste (or fabric), rim and lip form, surface finish and decorative treatment, I have found that 456 rim-and-lip, near-rim, and shoulder sherds are assignable to 5 named wares and 13 component rim types that are introduced here by me; and that 116 rim-and-lip and shoulder sherds are assignable, or probably assignable, to 9 (rim) types named and described herein (see Appendix), or previously named and defined in the literature. In the following pages, I will first describe by ware and rim type the identifiable pottery specimens; and then I will describe the fragmentary rim, near-rim, shoulder and body sherds, and appendages, which are not identifiable, or are not identifiable with assurance, as to type but which undoubtedly belong to one or another of the recognized types, according to the decorative treatment and surface finish manifested by each group. At least 530 vessels appear to be represented by the identifiable rim-and-lip and shoulder sherds in the Hintz pottery sample.

### PARKHURST INCURVED RIM WARE

(Ware sample: 2 composite and 6 individual rim-and-lip sherds.)

Paste:

*Temper:* Sparse to medium amounts of fine to coarse grit, up to 3.5 mm. in diameter, consisting mainly of quartz.

*Texture:* Core, compact-contorted; surfaces, fine, unslipped.

*Color:* Core, gray; surfaces, brownish gray to dark gray.

*Hardness:* 3 (calcite) to 4 (fluorite).

Technique of Manufacture: Probably lump modeled, then thinned by paddle and anvil.

Surface Finish: Exterior, vertically simple stamped (i.e., thong-wrapped paddle or grooved paddle impressed) and partially smoothed, or smoothed; interior, roughly smoothed, or smoothed.

Form:

*Lip:* Rounded.

*Rim:* Straight and incurved.

*Neck:* No data.

*Shoulder:* No data.

*Body:* No data.

*Base-Bottom:* No data.

*Appendages:* No handles and lugs present.

Decorative Treatment: Rectilinear wrapped-stick impressions on the exterior lip only (see below).

Component Rim Type: Parkhurst Dentate Stamped.

### *Parkhurst Dentate Stamped*

(Pl. 30, *a*)

(Type sample: 2 composite and 6 individual rim-and-lip sherds, representing 6 vessels.)

Form:

*Lip:* Rounded and slightly to markedly extruded exteriorly and/or interiorly; 4.75 mm. to 7.75 mm. in width. Extrusion of the lip appears to have been produced by compression of the plastic clay in the process of decoration.

*Rim:* Straight and incurved, of indeterminate height. Wall, 5 to 7 mm. in thickness.

DECORATIVE TREATMENT: Evidently confined to the exterior lip, decoration consists of a row of parallel diagonal dentate stamps running from about the midline of the lip downward to the left. The stamps are truncated ellipses in outline, and vary from 6.75 to 10.5 mm. in maximum length, 3.5 to 5.25 mm. in maximum breadth, and 0.5 to 1.25 mm. in maximum depth.

### BUCHANAN FLARED RIM WARE

(Type sample: 8 composite and 158 individual rim-and-lip sherds, 1 individual shoulder sherd.)

PASTE:

*Temper:* Generally, medium to large amounts of fine grit, with occasional particles up to 4.5 mm. in diameter, consisting mainly of quartz; one sherd (classified under Buchanan Tool Impressed) is heavily "tempered" with finely crushed shell, in addition to quartz particles. The presence of shell in this specimen may be explained as an accidental inclusion in, rather than a nonplastic added to, the clay used.

*Texture:* Core, compact-contorted; surfaces, fine, unslipped.

*Color:* Core, gray; surfaces, reddish buff to dark gray.

*Hardness:* 3 (calcite) to 4 (fluorite).

TECHNIQUE OF MANUFACTURE: Probably lump modeled, then thinned by paddle and anvil.

SURFACE FINISH: Exterior, vertically simple stamped (i.e., thong-wrapped paddle or grooved paddle impressed) and partially smoothed (pl. 30, *f*), or smoothed (pl. 30, *e*); interior, smoothed, with occasional shallow, horizontal striations possibly indicating grass-wiping.

FORM:

*Lip:* Rounded, usually flat but occasionally undulating, sometimes beveled exteriorly or interiorly, sometimes extruded exteriorly and/or interiorly, in extreme cases to form an inverted L-shaped or T-shaped lip, apparently by compression of the plastic clay in the process of decoration; 4 to 15.25 mm. in width.

*Rim:* Straight and flared, ranging from 6.5 to 29.5 mm. in height. Wall, 4.5 to 8.5 mm. in thickness.

*Neck:* The juncture of the rim and shoulder is well defined.

*Shoulder:* Rounded.

*Body:* Globular or spheroidal.

*Base-Bottom:* No data.

*Appendages:* No handles and lugs present.

VESSEL SHAPE: Small jars with very low to low flaring rim, well-defined neck, and globular body. Orifice diameters projected from two composite sherds are 14.2 cm. (pl. 30, *e*) and 14.9 cm. (pl. 30, *f*).

DECORATIVE TREATMENT: Rectilinear incisions or narrow trailed lines, twisted cord, tool, and wrapped-stick impressions, or punctations occur on the lip and/or upper exterior or upper interior rim surface, in the majority of the specimens; a few examples bear alternating plats of horizontal and vertical broad trailed lines; a few sherds are undecorated (see below).

COMPONENT RIM TYPES:

Buchanan Incised-Trailed.
Buchanan Cord Impressed.
Buchanan Tool Impressed.
Buchanan Punctated.
Buchanan Wrapped-Stick Impressed.
Buchanan Undecorated.

### *Buchanan Incised-Trailed*

(Pl. 30, *e*, *f*)

(Type sample: 5 composite and 37 individual rim-and-lip sherds, 1 individual shoulder sherd, representing 41 or 42 vessels.)

Form:

*Lip:* Rounded, usually level but occasionally undulating, sometimes beveled exteriorly or interiorly, sometimes extruded exteriorly and/or interiorly; 4.5 to 8 mm. in width.

*Rim:* Straight and flared, 12.5 to 29.5 mm. in height. Wall, 5.5 to 7.5 mm. in thickness.

Decorative Treatment: In most cases, decoration is confined to the lip or to the inner lip and upper part of the interior surface of the rim, and it consists of closely spaced incisions or narrow trailed lines in herringbone pattern on the lip—11 specimens (pl. 30, *f*); closely spaced short parallel incisions or narrow trailed lines on the outer lip, directed to the left—11 specimens (pl. 30, *e*); closely spaced parallel transverse incisions or narrow trailed lines on the lip, directed to the right or to the left—10 examples; and irregularly spaced, parallel incisions or narrow trailed lines on the inner lip and upper part of the interior rim surface, directed vertically, or to the left or right—10 specimens. In addition, the shoulder area of some specimens, at least, bears alternating plats of closely or widely spaced horizontal and vertical broad trailed lines, 3 to 4.5 mm. in width and up to 1 mm. in depth (pl. 30, *e*).

### *Buchanan Cord Impressed*

(Pl. 30, *b*)

(Type sample: 1 composite and 36 individual rim-and-lip sherds, representing 34 vessels.)

Form:

*Lip:* Usually rounded, or flattened, occasionally beveled exteriorly, sometimes markedly extruded exteriorly or exteriorly-interiorly to form an inverted L-shaped or T-shaped lip, sometimes only slightly extruded interiorly and exteriorly; 5.5 to 15 mm. in width.

*Rim:* Straight and flared, about 9 to about 26 mm. in height. Wall, 4.75 to 8.5 mm. in thickness.

Decorative Treatment: Usually, decoration is restricted to the lip or the upper part of the interior surface of the rim, and it consists of closely spaced parallel, transverse cord-impressed lines on the lip, directed to the left—11 specimens (pl. 30, *b*); closely spaced parallel, transverse cord-impressed lines on the lip, directed to the right, and a row of short incisions on the outer lip, directed to the left—one example; an encircling band of two parallel cord-impressed lines on the lip—nine specimens; an encircling band of three parallel cord-impressed lines on the lip and a row of widely spaced short cord-impressed lines on the outer lip, directed to the left—one specimen; closely spaced cord-impressed lines in herringbone pattern on the lip—one example; a row of closely to rather widely spaced cord-impressed lines on the outer lip, directed to the left—13 specimens; and an encircling band of four closely spaced cord-impressed lines on the upper part of the interior rim surface—one example. In 4 of the 37 sherds in the present sample, the exterior surface of the rim bears from one to three widely spaced horizontal cord-impressed lines. In 30 of the 37 examples, the impressions were made with cord having a tight clockwise (or S) twist; in the remaining 7 specimens, with a cord having a tight counterclockwise (or Z) twist.

### *Buchanan Tool Impressed*

(Pl. 30, *c*)

(Type sample: 27 individual rim-and-lip sherds, representing 27 vessels.)

FORM:

*Lip:* Usually rounded or flattened, sometimes beveled interiorly or exteriorly, sometimes extruded interiorly and/or exteriorly; 3.75 to 7.75 mm. in width.

*Rim:* Straight and flared, about 17.5 to about 33.5 mm. in height. Wall, 3.5 to 7.5 mm. in thickness.

DECORATIVE TREATMENT: Confined to the lip or the upper part of the interior or exterior surface of the rim, it includes closely to widely spaced parallel transverse, longitudinal, and diagonal (to the right or left) impressions on the lip—17 specimens (pl. 30, *c*), including the aforementioned shell-"tempered" sherd; widely spaced parallel diagonal or oval impressions on the outer or inner edge of the lip—four examples; closely to widely spaced parallel diagonal impressions, to the left or right, on the upper part of the exterior surface of the rim—three specimens; and closely spaced parallel diagonal impressions, to the left, on the upper part of the inner surface of the rim—three specimens. Considerable variety obtains in the outlines and cross sections of the "tool impressions"—from oblong to oval, and from U-shaped to a mark like this: *v*. Evidently the impressions were made by such instruments as stiff weed stems and pointed wooden or bone tools (see below) applied to the plastic clay fabric.

### *Buchanan Punctated*

(Pl. 30, *d*)

(Type sample: 1 composite and 17 individual rim-and-lip sherds, representing 15 vessels.)

FORM:

*Lip:* Usually rounded or flattened, sometimes extruded interiorly and exteriorly; 5.5 to 7 mm. in width.

*Rim:* Straight and flared, about 29 mm. in height. Wall, 5 to 6.5 mm. in thickness.

DECORATIVE TREATMENT: Confined to lip or the upper part of the exterior surface of the rim, it consists of closely to widely spaced parallel oval to elliptical and rather deep punctates on the lip, oriented diagonally, longitudinally or at right angles with respect to the direction of the rim—13 specimens (pl. 30, *d*); closely to widely spaced parallel semilunar and rather deep punctates, oriented longitudinally with reference to the direction of the rim—three examples; and widely spaced parallel oval punctations on the upper part of the exterior surface of the rim, just below the exteriorly extruded (rolled) lip—two examples. The punctates appear to have been made by a pointed wooden or bone tool, or, in the case of the semilunar punctates, by the end of a hemispherical tool, e.g., half of a stiff weed stem or small bone.

### *Buchanan Wrapped-Stick Impressed*

(Type sample: 1 composite and 3 individual rim-and-lip sherds, representing 4 vessels.)

Form:

*Lip:* Rounded or beveled interiorly and extruded exteriorly; 3.5 to 9.5 mm. in width.

*Rim:* Straight and flared, about 21 mm. in height. Wall, 5.5 to 9 mm. in thickness.

Decorative Treatment: On the lip or upper part of the interior surface of the rim and the upper part (?) of the exterior surface of the rim, it consists of widely spaced parallel diagonal impressions made by a stick or dowel wrapped with sinew, wooden splint, grass stem, or similar material, on the outer edge of the lip—one example; a band of two horizontal lines of wrapped-stick impressions on the interiorly beveled lip—one specimen; and a band of three horizontal lines of wrapped-stick impressions on the upper part of the interior surface of the rim—two specimens. One of the latter has alternating plats of closely spaced parallel diagonal incised or narrow trailed lines on the upper part (?) of the exterior surface of the rim.

### *Buchanan Undecorated*

(Type sample: 38 individual rim-and-lip sherds, representing possibly 38 vessels.)

Form:

*Lip:* Rounded, sometimes exteriorly and/or interiorly everted (presenting a rounded or angular rolled edge); 4.25 to 8.25 mm. in width.

*Rim:* Straight and flared, about 21 to 29 mm. in height. Wall, 4.5 to 9 mm. in thickness.

Decorative Treatment: None. Lips and rim surfaces are irregularly to evenly smoothed and unembellished.

### PINGREE WEDGE RIM WARE

(Ware sample: 6 composite and 25 individual rim-and-lip sherds.)

Paste:

*Temper:* Sparse to medium amounts of fine to medium-coarse grit, up to 2.25 mm. in diameter, consisting mainly of quartz.

*Texture:* Core, compact-contorted; surfaces, fine, unslipped.

*Color:* Core, brownish gray to gray; surfaces, reddish buff to dark gray.

*Hardness:* 3 (calcite) to 4 (fluorite).

Technique of Manufacture: Probably lump modeled, then thinned by paddle and anvil.

Surface Finish: Exterior and interior evenly smoothed.

Form:

*Lip:* Rounded.

*Rim:* Flared, with upper part of exterior rim thickened and beveled ("wedge rim").

*Neck:* The juncture of the rim and shoulder is well defined.

*Shoulder:* No data.

*Body:* No data.

*Base-Bottom:* No data.

*Appendages:* No handles or lugs present.

Decorative Treatment: Rectilinear twisted cord-impressions on the exterior rim bevel, sometimes with a row of oval (finger-fingernail) or crescent (fingernail) stamps at the base of the bevel; fingernail impressions near the base of the bevel, and horizontal and diagonal cord-impressed lines on the shoulder; twisted cord-impressions on the outer and inner surfaces of the lip, in herringbone pattern, and a band of twisted cord-impressions on the exterior surface of the rim; and twisted cord-impressions on the exteriorly beveled lip and a band of twisted cord-impressions on the upper part of the interior surface of the rim (see below).

Component Rim Types:

Pingree Cord Impressed.
Pingree Dentate Stamped.

### *Pingree Cord Impressed*

(Pl. 31, *a–c*)

(Type sample: 5 composite and 21 individual rim-and-lip sherds, representing 17 vessels.)

Form:

*Lip:* Rounded; 2 to 3 mm. in width.

*Rim:* Low and flared, exteriorly thickened and beveled ("wedge shaped") just below the lip, about 22–23 mm. in height. The angle of the exterior bevel ranges from 34° to 56° from the vertical (90°). Wall, 6.75 to 13 mm. in maximum thickness at the base of the bevel, 6.75 to 10 mm. in thickness below the bevel.

Decorative Treatment: Variable, as follows: Closely spaced parallel diagonal twisted cord-impressions on the exterior rim bevel, to the left, with a row of widely and irregularly spaced oval (finger-fingernail) stamps near the base of the bevel—five specimens (pl. 31, *a*); closely spaced paddled diagonal twisted cord-impressions on the exterior rim bevel, to the right, with a row of closely to widely spaced crescent (fingernail) stamps near the base of the bevel, and closely spaced diagonal cord-impressed lines, to the right, framed by a single cord-impressed horizontal line above, on the shoulder area—eight examples (pl. 31, *b*); closely spaced diagonal cord-impressed lines in crisscross pattern on the rim bevel—six specimens (pl. 31, *c*); closely spaced parallel diagonal cord-impressed lines on the rim bevel and on the upper part of the interior rim surface, in herringbone pattern, and a band of closely spaced parallel horizontal cord-impressed lines on the exterior surface of the rim below the bevel—one example; closely spaced vertical or parallel diagonal (to right or left) cord-impressed lines on the rim bevel, and a band of three or four closely spaced parallel horizontal cord-impressed lines on the upper part of the interior rim surfaces—six examples. In 20 of the 26 specimens, the impressions were made with a cord having a tight S-twist; in five of the examples, with cord having a tight Z-twist; and in the remaining specimens, with cord having tight S-twist (on the interior rim surface) and tight Z-twist (on exteriorly beveled rim surface).

### *Pingree Dentate Stamped*

(Pl. 31, *d*)

(Type sample: 1 composite and 4 individual rim-and-lip sherds, representing 4 or possibly 5 vessels.)

FORM:

*Lip:* Rounded, sometimes sharply rounded; 1.5 to 3.5 mm. in width.

*Rim:* Flared, and exteriorly thickened and beveled ("wedge shaped") just below the lip, of indeterminate height. The angle of the exterior bevel is 32° from the vertical (90°). Wall, 7.25 mm. in thickness at the base of the bevel, 6 mm. in thickness below the bevel.

DECORATIVE TREATMENT: Seemingly confined to the lip, it consists merely of elliptical, dentate stamped impressions in parallel diagonal orientation and rather widely spaced, on the exterior rim bevel.

## EDMUNDS COLLARED RIM WARE

(Ware sample: 1 composite and 2 individual rim-and-lip sherds, 2 individual shoulder sherds.)

PASTE:

*Temper:* Sparse to medium amounts of fine to medium-coarse grit, up to 2.5 mm. in diameter, consisting principally of quartz.

*Texture:* Core, compact-contorted; surfaces, fine, unslipped.

*Color:* Core, dark gray; surfaces, reddish buff to dark gray.

*Hardness:* 3 (calcite) to 4 (fluorite).

TECHNIQUE OF MANUFACTURE: Probably lump modeled, then thinned by paddle and anvil.

SURFACE FINISH: Exterior, simple stamped and smoothed, or smoothed; interior, irregularly to regularly smoothed, with horizontal striations present on one sherd.

FORM:

*Lip:* Rounded.

*Rim:* Collared.

*Neck:* The juncture of the rim and shoulder is well defined.

*Shoulder:* Rather sharp change in trend above and below the shoulder.

*Body:* Globular or spheroidal.

*Base-Bottom:* No data.

*Appendages:* No handle or lugs present.

VESSEL SHAPE: Small jars with low collared rim, well-defined neck, and globular body. Orifice diameter projected from one composite sherd is 8.9 cm. (pl. 31, *e*).

DECORATIVE TREATMENT: Rectilinear patterns on the collared rim and on the neck, made by lanceolate, dentate stamped impressions and narrow trailed lines, and filled and framed by oval and subcircular punctations; lips are undecorated (see below).

COMPONENT RIM TYPE:

Edmunds Dentate Stamped.

### *Edmunds Dentate Stamped*

(Pl. 31, *c*)

(Type sample: 1 composite and 2 individual rim-and-lip sherds, 2 individual shoulder sherds, representing 5 vessels.)

Form:

*Lip:* Rounded; 5.5 to 7 mm. in width.

*Rim:* Low collared, about 24 mm. in height. Wall, 5.25 to 6.25 mm. in thickness. The convex interior surface of the rim closely parallels the convex exterior surface.

Decorative Treatment: Confined to the collared rim and shoulder area, it consists of four lines of lanceolate, dentate stamped impressions in a zigzag pattern on the collar, with blank intervening V-shaped spaces, framed by a row of closely set oval punctates just below the lip and by a row of closely set subcircular punctations at the base of the collar; and six or seven narrow trailed lines in a zigzag pattern on the shoulder area, with the V-shaped space filled with rows of elliptical or truncated elliptical punctations, framed by a row of closely set subcircular punctations at the break of the shoulder. The punctations appear to have been made by the end of a cylindrical tool, e.g., a stiff weed stem, twig, or small bone.

## MELVILLE S-RIM WARE

(Ware sample: 10 composite and 229 individual rim-and-lip sherds, and 6 rim sherds bearing exterior nodes.)

Paste:

*Temper:* Moderate to copious amounts of fine to medium-coarse grit, up to 2.5 mm. in diameter, consisting about equally of granite and quartz.

*Texture:* Core, compact-contorted; surfaces, fine, unslipped.

*Color:* Core, buff to dark gray; surfaces, buff to dark gray.

*Hardness:* 3 (calcite) to 4 (fluorite).

Technique of Manufacture: Probably lump modeled, then thinned by paddle and anvil.

Surface Finish: Exterior, simple stamped and irregularly to evenly smoothed, sometimes vertically scored; interior, irregularly to evenly smoothed, with horizontal striations appearing on many sherds.

Form:

*Lip:* Rounded, pointed, or interiorly beveled, sometimes slightly or markedly extruded exteriorly and/or interiorly, by compressing of the plastic clay in the process of shaping or decorating the lip.

*Rim:* Recurved or S-shaped, with occasional exterior nodes at the apex of the convex surface of the rim.

*Neck:* The juncture of the rim and shoulder well defined.

*Shoulder:* No data.

*Body:* No data.

*Base-Bottom:* No data.

*Appendages:* No handles or lugs present.

Decorative Treatment: Predominantly rectilinear and curvilinear twisted cord-impressions (the latter in nested triangular area or "rainbow" motif on the upper part of the exterior rim surface and sometimes on the upper part of the interior rim surface also); with the rare appearance of a row of crescent (fingernail) stamps on the exterior surface and oval (finger) stamps on the interior surface; *lips are generally undecorated*, but occasionally bear twisted cord or narrow trailed lines and/or tool impressions. Less commonly, rectilinear wrapped-stick impressions on the upper part of the exterior rim surface, with occasionally a row of punctates on the exterior and interior rim surface just below the lip; *lips are usually undecorated*, but occasionally bear wrapped-stick impressions. Rarely, scored exterior rim surface, with the lip decorated with cord-impressed lines and, in one example, with a row of crescent (fingernail) stamps on the exterior rim just below the lip.

Component Rim Types:

Melville Cord Impressed.
Melville Wrapped-Stick Impressed.
Melville Scored.

### *Melville Cord Impressed*

(Pl. 32, *a–e*)

(Type sample: 8 composite and 212 individual rim-and-lip sherds, and 6 rim sherds bearing exterior nodes, representing approximately 218 vessels.)

Form:

*Lip:* Rounded or interiorly beveled, sometimes slightly or markedly extruded exteriorly and/or interiorly.

*Rim:* Slightly or exaggeratedly recurved or S-shaped, with exterior nodes (seven sherds) at the apex of convex surface of rim; in a few specimens, the upper part of the rim is thickened and beveled exteriorly (pl. 32, *b*), or is rolled outwardly (pl. 32, *c*) or inwardly.

Decorative Treatment: Confined to the upper part of the exterior rim, less commonly the upper part of the interior rim, and occasionally to the lip, decoration includes the following. On the exterior rim, lip undecorated—a band of closely spaced horizontal cord-impressed lines, in half the cases interrupted by nested triangles or arcs of cord-impressed lines ("rainbow" motif), sometimes enclosing exterior nodes—170 specimens (pl. 32, *a*); a band of closely spaced paddled diagonal cord-impressed lines on the thickened exterior rim, and, below an undecorated strip, a band of closely spaced horizontal cord-impressed lines—one example (pl. 32, *b*); a band of closely spaced parallel diagonal cord-impressed lines, sometimes crossing over exterior nodes, and with or without one or two pairs of framing horizontal cord-impressed lines below a slightly to markedly out-rolled or straight lip—18 specimens (pl. 32, *c*, *e*); a band of four to six closely spaced horizontal cord-impressed lines just below the inward rolled lip—six examples; and two bands—upper, closely spaced parallel diagonal cord-impressed lines, to the right; lower, closely spaced parallel horizontal cord-impressed lines, in one instance with a row of crescent (fingernail) stamps interrupting the upper band and in one case with nested triangles of cord-impressed lines interrupting the lower band—just below the inward rolled lip—three examples. On the exterior and interior rim, lip undecorated—a band of closely spaced horizontal cord-impressed lines on the upper parts of the exterior and interior rim—one specimen. On the exterior rim, lip decorated—a band of closely spaced horizontal cord-impressed lines, in one third of the cases interrupted by nested triangles or arcs of cord-impressed lines ("rainbow" motif), with a row of closely spaced parallel diagonal cord-impressions on the lip or outer edge of the lip, to the right or left—16 specimens (pl. 32, *d*) ; a band of closely spaced horizontal cord-impressed lines, with a single encircling cord-impressed line on the lip and a row of closely spaced parallel diagonal cord-impressed lines on the outer edge of the lip, to the right—one example; a band of closely spaced cord-impressed lines, with a row of closely spaced parallel diagonal narrow trailed lines on the lip—two specimens; a band of closely spaced horizontal cord-impressed lines, in one case interrupted by nested triangles of cord-impressed lines, with a row of oval tool-impressions on the lip—three examples; a band of closely spaced parallel diagonal cord-impressed lines, to the right, framed above and below (?) by a single horizontal cord-impressed line, with a row of oval tool-impressions on the lip—two specimens; and a band of closely spaced parallel diagonal cord-impressed lines, to the right, framed above and below by a horizontal cord-impressed line, with a row of tool-impressions at the juncture of the inner lip and rim—one example. On the interior rim surface, lip decorated—a band of closely spaced horizontal cord-impressed lines on the interior rim surface, with a row of closely spaced vertical cord-impressed lines on the outer edge of the lip—two examples. In 152 of the 226 specimens, the impressions were made with cord having a tight to rather loose S-twist. In the remaining 74 specimens, the impressions were made with cord having a tight Z-twist.

### *Melville Wrapped-Stick Impressed*

(Pl. 32, *f*, *g*)

(Type sample: 1 composite and 15 individual rim-and-lip sherds, representing 13 vessels.)

FORM:

*Lip:* Rounded, pointed, or interiorly beveled.

*Rim:* Recurved or S-shaped, with the upper part of the rim rarely rolled outwardly (pl. 32, *f*).

DECORATIVE TREATMENT: Confined to the upper part of the exterior rim, exterior rim and lip, or the lip only, decoration includes the following. On exterior rim, lip undecorated—a band of closely spaced wrapped-stick impressed lines, occasionally interrupted by nested arcs of wrapped-stick impressed lines ("rainbow" motif)—nine specimens (pl. 32, *f*) ; and a band of closely spaced parallel diagonal wrapped-stick impressed lines, to the left or right, framed above and below (?) by a horizontal wrapped-stick impressed line—three examples. On the exterior rim, lip decorated—a band of closely spaced horizontal wrapped-stick impressed lines, with a row of closely spaced oval tool-impressions on the outer and inner edges of the lip—one example (pl. 32, *g*) ; and a band of closely spaced parallel diagonal wrapped-stick impressed lines, to the right, with a row of closely spaced parallel diagonal wrapped-stick impressed lines, to the left, on the interiorly beveled lip—one specimen. Lip decorated only—a row of closely spaced parallel diagonal wrapped-stick impressed lines, to the right, on the outer surface of the lip—one example; and a row of closely spaced parallel diagonal wrapped-stick impressed lines, to the left, on the interiorly beveled lip.

### *Melville Scored*

(Pl. 32, *h*)

(Type sample: 3 individual rim-and-lip sherds, representing 3 vessels.)

FORM:

*Lip:* Rounded and, in one case, exteriorly beveled.

*Rim:* Recurved or S-shaped, with the upper part of the rim inwardly rolled (pl. 32, *h*).

DECORATIVE TREATMENT: The upper part of the exterior rim is vertically scored, by a toothed wooden or bone implement or perhaps by a corncob; in two cases, the lip and upper part of the exterior rim bear deep, rather closely spaced parallel diagonal cord impressions (pl. 32, *h*); in the third example, the exteriorly beveled lip has two closely spaced encircling cord-impressed lines and the exterior rim bears a row of rather widely spaced crescent (fingernail) stamps just below the lip. In two of the three specimens, the impressions were made with cord having a tight S-twist. In the third example, the impressions (encircling the lip) were made with cord having a tight Z-twist.

### OTHER RIM TYPES

One hundred and sixteen rim-and-lip and shoulder sherds obtained from the Hintz site are assignable, or probably assignable, to nine (rim) types named and described in the appendix to this report or in the published literature, as follows.

*Lisbon Tool Impressed.*—2 individual rim-and-lip sherds representing one vessel (pl. 33, *a;* see Appendix herewith). Characteristics: Form—lip rounded and extruded exteriorly, 8.5 mm. in maximum width; rim straight and flared, approximately 33 mm. in height, 8 mm. in thickness. Surface finish—exterior, vertically cord-marked and partially smoothed; interior, smoothed. Decorative treatment—rather closely spaced tool impressions oriented transversely on the lip.

*Lisbon Undecorated.*—1 individual rim-and-lip sherd (pl. 33, *b;* see Appendix). Characteristics: Form—lip rounded and slightly extruded interiorly, 7 mm. in width; rim straight and vertical, approximately 26.5 mm. in height, 7 mm. in thickness. Surface finish—exterior, cord-marked vertically and scored horizontally; interior, roughly smoothed. Decorative treatment—none.

*Owego Tool Impressed.*—15 shoulder (?) sherds, possibly representing 12 or 13 vessels (pl. 34, *a;* see Appendix). Characteristics: Form—rounded shoulder, 4 to 6.25 mm. in thickness. Surface finish—exterior, overall check stamped, with the stamps in the form of squares measuring 4 mm. on a side and 0.5 mm. in depth, or oblongs ranging from 3.5 x 4.9 mm. on the sides and 0.5 mm. in depth, to 7 x 8 mm. on the sides and 0.75 mm. in depth; interior, unevenly smoothed or smoothed. Decorative treatment—none (in addition to the check stamping).

*Ransom Cord Impressed.*—1 composite and 16 individual rim-and-lip sherds, representing 16 vessels (pl. 33, *c;* Wood, 1955, pp. 6–7). Characteristics: Form—lip rounded and sometimes slightly extruded interiorly, 2.75 to 4 mm. in width; rim low and flared, exterior thickened and beveled ("wedge shaped") just below the lip, 23 to 41 mm. in height. The angle of the exterior rim bevel ranges from 14° to 27° from the vertical (90°); the wall ranges from 6.75 to 10 mm. in maximum thickness at the base of the bevel, 5.5 to 8 mm. in thickness below the bevel. In one sherd, the rim bevel exhibits a low projection which evidently resulted when the rim was pushed outward at this point. Surface finish—exterior and interior smoothed. Decorative treatment—in every case, the rim bevel bears closely parallel diagonal cord-impressions (to the left in seven examples, to the right in six examples) or two or three encircling cord impressed lines (in four specimens). Furthermore, the exterior rim of 11 specimens bears closely or rather widely spaced parallel horizontal cord-impressed lines, starting either directly beneath the bevel or below an undecorated strip of variable width. In this respect, the majority of the sherds from Hintz identified with Ransom Cord Impressed departs from the type sample from the Biesterfeldt site described by Wood. I would prefer to consider the Hintz specimens as variants of the Ransom Cord Impressed type rather than as another, separate type. In 13 of the Hintz specimens, the impressions were made by cord with S-twist; in the remaining four examples from Hintz, the impressions were made by cord with Z-twist.

*Ransom Cord-Wrapped Stick.*—1 composite and 3 individual rim-and-lip sherds, representing 4 vessels (pl. 33, *d, e;* Wood, 1955, p. 6). Characteristics: Form—lip rounded and sometimes slightly extruded interiorly, 2.5 to 3.5 mm. in width; rim flared, exterior thickened and beveled ("wedge shaped") just below the lip. The angle of the exterior ranges from 20° to 32° from the vertical (90°); the wall varies from 7.5 to 8.25 mm. in thickness at the base of the bevel, 6 to 8.5 mm. in thickness below the bevel. Surface finish—exterior and interior smoothed or roughly smoothed. Decorative treatment—the rim bevel bears closely spaced parallel diagonal wrapped-stick impressions, directed to the right (one case, pl. 33, *d*) or to the left (three cases, pl. 33, *e*).

*Stanley Cord Impressed.*—2 composite and 60 individual rim-and-lip sherds, representing 58 vessels (pl. 33, *f, g;* Lehmer, 1951, pp. 7–8, and 1954, p. 44). Characteristics: Form—lip rounded or sharply rounded, 1.5 to 3.5 mm. in width; rim flared, exterior thickened (or "braced") by a fillet of clay welded on just below the lip. Wall varies from 7.5 to 10.5 mm. in maximum thickness at the brace, 5.5 to 8 mm. in thickness below the brace. Surface finish—exterior, simple stamped, simple stamped partly obliterated by smoothing, or scored or "brushed" (probably actually produced by a toothed implement or corncob); interior, smoothed. Decorative treatment—invariably, closely spaced cord-impressions occur on the rim brace—either parallel diagonal cord-impressions directed to the right (30 specimens, pl. 33, *f*) or to the left (14 cases); or encircling cord-impressions (17 specimens, pl. 33, *g*), with one specimen bearing parallel diagonal cord-impressions, to the left, on the interior rim surfaces; or encircling cord-impressions intercepted by a group of three diagonal cord-impressions, directed to the right (one specimen). Additional decorative treatment consists of a band of horizontal cord-impressions on the lower part of the exterior rim surface, below an undecorated strip of variable width, the area referred to by Lehmer as the "neck" (in at least ten cases, pl. 33, *f*), and a row of oval or subcircular punctates just below the brace (seven cases, pl. 33, *g*). Punctates apparently did not occur in the type sample from the Dodd site described by Lehmer. I would prefer to regard the Hintz specimens as variants of the Stanley Cord Impressed type rather than as a distinct type. In 59 of the Hintz sherds the impressions were made by cord with S-twist; the remaining three examples from Hintz bear impressions made by cord with Z-twist.

*Stanley Wavy Rim* (?).—1 individual rim-and-lip sherd (pl. 33, *h;* Lehmer, 1951, p. 6, and 1954, pp. 43–44). Characteristics: Form—lip rounded, 4.5 mm. in thickness; rim flared, exterior apparently thickened (or "braced") and indented by pressing the plastic clay with the thumb and offset forefinger. Wall is 12.5 mm. in thickness at the brace, 7 mm. in thickness below the brace. Surface finish—exterior and interior smoothed. Decorative treatment—the rim brace and lip are undecorated, but a band of horizontal cord-impressed lines (with the cord having a Z-twist) occurs on the exterior rim surface below the brace. This suggests a Hintz variant of the type.

*Stanley Plain.*—6 individual rim-and-lip sherds, representing 4 vessels (pl. 33, *i;* Lehmer, 1951, p. 8, and 1954, pp. 45–46). Characteristics: Form—lip rounded, 4.25 and 6.5 mm. in thickness; rim flared, exterior thickened (or "braced"). Wall is 7.25 and 8.5 mm. in thickness at the brace, 6 mm. in thickness below the brace. Surface finish—exterior simple stamped and smoothed, or smoothed; interior smoothed. Decorative treatment—the rim brace and lip are undecorated, and in five cases the exterior rim surface is also undecorated. But in the sixth example present, there are bands of parallel horizontal cord-impressions (with the cord having an S-twist) on the exterior rim surface, below the brace, and on the upper part of the interior rim surface. The rim direction here suggests a Hintz variant of the type.

*Talking Crow Indented.*—8 individual rim-and-lip sherds, representing 8 vessels (pl. 33, *j*; C.S. Smith, 1951, p. 35). Characteristics: Form—lip flattened, 7.5 to 10.5 mm. in width; rim straight and vertical or flared, 30 to about 70 mm. in height. Wall 6.25 to 7.75 mm. in thickness. Surface finish—exterior vertically scored or "brushed" (probably actually produced by a toothed implement or corncob), or vertically simple stamped and vertically and/or horizontally scored, interior horizontally scored or smoothed. Decorative treatment—confined to the lip, it consists of closely or widely spaced, large or small elliptical or truncated elliptical indentations on the lip, evidently made by a wooden or bone tool, or by the potter's forefinger. In most cases the lip has been extruded exteriorly and/or interiorly, from compression of the plastic clay in the process of indentation.

### FRAGMENTARY RIM, NEAR-RIM, SHOULDER AND BODY SHERDS, AND APPENDAGES

The 10,497 fragmentary rim, near-rim, shoulder and body sherds, and 13 appendages, which are not identifiable or not identifiable with certainty as to type, but which doubtless belong to one or another of the types represented at Hintz because of similar general dimensions and shared attributes (paste, surface finish, decorative treatment) are briefly described below.

FRAGMENTARY RIM, NEAR-RIM AND SHOULDER SHERDS: 1,595 specimens.

*Cord-Impressed.*—678 specimens. The closely spaced rectilinear or curvilinear impressions made by cord with a generally tight twist correspond in all particulars with those previously described under the several identified cord-impressed types. By inadvertence, the direction of twist was observed in only 219 specimens (or in about one-third of the pieces in this group). In this sample, 165 specimens had an S-twist, 54 had a Z-twist. This approximate three-to-one proportion is higher than in the samples of Buchanan Cord Impressed and Pingree Cord Impressed (about four to one) but lower than in the sample of Melville Cord Impressed (about two to one).

*Incised-Trailed.*—635 specimens. The rectilinear markings are usually shallow and V-shaped or U-shaped in cross section, averaging about 1.5 mm. in width and 0.5 mm. in depth. Occasionally, however, broad trail marks occur, 3.75 to 5.5 mm. in width and 0.75 mm. in depth, as in the sample illustrated (pl. 34, *b*). The trailing is comparable to that present on the shoulder and upper body of some sherds identified as Buchanan Incised-Trailed.

*Tool Impressed.*—26 specimens. Transverse, longitudinal and diagonal impressions of various sizes and shapes occur on or near the lip in these examples, as in sherds identified as Buchanan Tool Impressed.

*Punctated.*—14 specimens. Oval to elliptical punctations occur on the lip or on the upper part of the exterior rim surface (?), as in identifiable Buchanan Punctated sherds.

*Wrapped-Stick Impressed.*—71 specimens. Rectilinear impressions by sticks or dowels wrapped with sinew, wooden splint, grass stem or like material, as in identifiable Buchanan Wrapped-Stick Impressed and Melville Wrapped-Stick Impressed sherds.

*Dentate Stamped.*—7 specimens. Diagonal, elliptical impressions appear to be confined to the lip area, as in identifiable Parkhurst Dentate Stamped and Pingree Dentate Stamped sherds.

*Scored.*—162 specimens. Shallow vertical or diagonal striations (pl. 34, *c*), presumably produced by a toothed wooden or bone implement or a corncob, occur on the exterior rim surface, as in identifiable Melville Scored sherds.

*Painted (?).*—2 specimens. A sooty, black band on each of two smoothed, unslipped, dark buff-colored sherds (pl. 34, *g*, *h*) suggests an attempt at ceramic embellishment by the application of pigment rather than by the customary variants of tool-imprinting (used in the very general sense). The sherds in question are too fragmentary to give any notion of the character and extent of the painted (?) decoration.

BODY SHERDS:

A total of 8,902 minute to large, intact body sherds (that is, sherds ranging from 21.5 mm. or less to 62 mm. or more in maximum diameter, according to my own conventions, and preserving both exterior and interior surfaces) were collected from the Hintz site. Undoubtedly these sherds belong to one or another of the identified (rim) types discussed above, since with a single exception they share paste characteristics and size ranges with the latter. However, inasmuch as the body sherds were not directly related to the described types, they must be treated separately, according to the exterior surface finish observed.

*Simple Stamped.*—2,053 specimens, or 23 percent of the sample. The sherds in this group, all unslipped, bear overall vertical or diagonal smooth grooves or troughs on the exterior surface which vary from 2 to 9 mm. in width and from 0.5 to 1 mm. in depth, and are separated by relatively narrow and sharp or relatively broad and rounded ridges (pl. 34, *e*, *f*). The smooth groove-ridge pattern was probably produced by the application of a thong-wrapped or grooved paddle to the exterior surface in malleating and incidentally decorating the vessel. The finish is called "simple stamping" in contemporary parlance for the sake of brevity and because the tool actually utilized in the process is not known or determinable with certainty. In numerous instances, the smooth grooves and ridges have been partially or almost totally obliterated by subsequent smoothing or buffing. For this reason it might be inferred that for many potters the decorative effect had no appeal.

One medium-size sherd in the group was heavily tempered with finely crushed shell, and one minute sherd bears traces of red (hematite) film on parts of the interior surface. In each respect, these are unique specimens in the entire Hintz collection. The only comment I can offer is the personal opinion that the attributes manifested here are fortuitous within the local culture rather than indicative of extraneous cultural relationships.

*Cord-Marked.*—252 specimens, or 3 percent of the sample. The sherds in this group, all unslipped, bear overall vertical or diagonal spiraled grooves or troughs on the exterior surface which range from 1 to 4 mm. in width and from 0.5 to 1 mm. in depth, and are separated by relatively narrow and sharp or relatively broad and rounded ridges (pl. 34, *d*). The spiraled groove-ridge pattern was probably produced by the application of a cord-wrapped paddle to the exterior surface in malleating and incidentally decorating the vessel (similar to the case of simple stamping). The finish is often called "cord roughening" in the Plains. This is unfortunate, since the results of overall impressing with a paddle wrapped with twisted cords and with a paddle wrapped with a knotted

cord or fabric are clearly different, and examples of each are to be found in pottery from Plains sites. In many sherds in the Hintz sample, the spiraled grooves and ridges have been partly or almost wholly obliterated by subsequent smoothing or buffing. As in the case of the numerous partially smoothed simple stamped sherds from Hintz, it might be inferred that for many potters the decorative effect of cord-marking had no importance as such.

*Smoothed.*—6,597 specimens, or 74 percent of the sample. This is by far the largest grouping in the Hintz pottery collection. All the specimens are unslipped. It seems likely that many of the examples classified as "smoothed" (or buffed, possibly scraped, but not burnished) were at first simple stamped or cord-marked and were then evened off, perhaps with the bare hand dipped in water. Many writers refer to the sherds placed in this group as "plain" sherds.

APPENDAGES:

The specimens in this category include 12 fragmentary strap handles and one fragmentary lug, described as follows.

*Handles.*—12 specimens. Two examples are merely end fragments which have been welded onto the upper rim, in one case, and onto the shoulder or body, in the other. The other 10 specimens are fragments of the "body" of strap handles which retain rounded lateral edges in three instances, but only one rounded lateral edge in seven instances. Measurements of the intact specimens are: Maximum width, 17.5 to 28 mm.; maximum thickness, 6.75 to 10 mm. Four of the ten fragments are decorated: One with closely spaced parallel diagonal wrapped-stick impressions, three with closely spaced horizontal cord impressions. In two of the latter, the cord had a Z-twist; in the third, the cord had an S-twist. The other six fragments are smoothed.

*Lug.*—1 specimen. The single example present is part of what appears to have been a subtriangular projection, 9.5 mm. in maximum thickness. One surface (upper?) is decorated with plats of alternating closely spaced parallel diagonal and widely spaced horizontal cord impressions. The cord had an S-twist.

SPLIT SHERDS:

Lastly, there is a residual group of 670 sherds in the Hintz collection which I am calling "split" sherds for the reason that they have been sundered parallel to the long (?) axis and retain only one surface. Beyond segregating and counting them, these fragments did not seem to merit further attention. It might be noted that these specimens suggest the strong probability that Hintz pottery was lump modeled and thinned by paddle and anvil—as I have stated in previous pages—rather than built up by the coiling technique.

### DISTRIBUTION OF CLASSIFIED POTTERY FRAGMENTS, AND CHARACTERIZATION AND POSSIBLE AFFINITY OF THE CERAMIC COMPLEX, AT THE HINTZ SITE

The provenience of all the classified pottery fragments obtained from the Hintz site is given in accompanying table 3.

*Distribution.*—The provenience of the rim sherds of 13 locally identifiable rim types and 9 (rim) types defined at other sites in the Northern Plains, and the provenience of the body sherds, classified into three groups on the basis of exterior surface finish, in the Hintz excavations, permit the following observations on the distribution of rim sherd types and body sherd groups in the Hintz site or component:

1. By far the commonest of the 13 "local" rim types is Melville Cord Impressed, represented by 226 specimens, or 49.5 percent of the sample of 13 local types. This rim type is also the most "popular," or most widely dispersed, of these rim types: examples of this rim type were associated with all five excavated struc-

## TABLE 3.—*Distribution of classified pottery fragments, Hintz site*

| | | XU3-House 2(F25) and sweat lodge (F35) | | XU1-Trash dump | | | | | X17-House 4(F34) | | | XU2-House 1(F17) | | | | | | | XU2-House 3(F27) and partly excavated house | | | | | XU4 | | | | XU16-Bower (F48) | XU5 | XU25 | | XU6 | XU12 | | XU13 | XU24 | | XU7 | | XU 8 | XU10 | XU11 | XU 9 | XU22 | XU20 | XU14 | XU15 | XU21 | XU23 | XU18 | | XU19 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Surface | 0.2–0.7* (to 1.5) | 0.7–1.5 (from 0.5) | 0.2–0.7 (to 1.7) | 0.7–2.5 (from (0.5) | F1 (0.7–0.9) | F5 (0.8–1.2) | Indeter. | 0.2–0.7 (to 1.5) | 0.7–1.1 (from 0.6) | F19 (0.7–1.1) | 0.2–0.7 (to 1.2) | F6 (0.5–2.2) | 0.7–2.0 | F9 (0.7–2.2) | F10 (2.4) | F11 (1.75–2.45) | F15 (2.25–2.65) | 0.2–0.7 (to 1.2) | 0.7–1.2 (from 0.6) | F26 (1.0–1.3) | F28 (1.0–2.0) | Indeter. | 0.2–0.7 (to 1.5) | 0.7–1.2 (from 0.5) | F20 (0.7–0.9) | Indeter. | 0.2–1.0 | 0.2–0.7 | Surface | 0.0–0.4 | 0.2–0.8 | 0.2–0.7 (to 1.65) | 0.7–1.2 | 0.2–0.6 | 0.2–1.0 | F46 (0.5–0.65) | 0.2–1.0 | 0.7–1.0 | None | 0.2–0.7 | 0.2–1.0 | 0.2–0.7 | 0.2–0.7 | 0.2–0.6 | 0.2–0.7 | 0.2–0.7 | 0.2–0.7 | 0.2–0.7 | 0.2–0.7 (to 0.75) | 0.7–1.2 | None | Total |
| Parkhurst Incurved Rim ware: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Parkhurst Dentate Stamped | | | | 2 | 2 | | | | | | | 1 | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 |
| Buchanan Flared Rim ware: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Buchanan Incised-Trailed | 1 | 5 | | 8 | 8 | | | | 2 | | | 3 | 1 | | 2 | | | | 1 | | | | | 6 | | | | | | | 2 | | | | | | | | | | | | | | | | | 4 | | | | | 43 |
| Buchanan Cord Impressed | 2 | 3 | 4 | 7 | 6 | | | | 1 | | | | | | | | | | 13 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 37 |
| Buchanan Tool Impressed | | 7 | 1 | 4 | 1 | | | | 4 | | | 1 | | | | | | | 7 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 27 |
| Buchanan Punctated | 1 | 4 | | 1 | 1 | | | | 1 | | | 3 | | | | | | | 3 | | | | | 1 | | | | •3 | | | | | | | | | | | | | | | | | | | | | | | | | 18 |
| Buchanan Wrapped-Stick Impressed | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 4 |
| Buchanan Undecorated | | 2 | | 7 | 9 | | | | 3 | 1 | | 1 | 1 | 1 | | | | | 6 | 1 | | | | | | | | | | | | | 1 | 1 | | | | 2 | | | | 1 | | | | | | 1 | | | | | 38 |
| Pingree Wedge Rim ware: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pingree Cord Impressed | 1 | 2 | 1 | 4 | 5 | | | | | | | 2 | | | | | | | 8 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 2 | | | 26 |
| Pingree Dentate Stamped | | | | | | | | | | | | 3 | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| Edmunds Collared Rim ware: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Edmunds Dentate Stamped | | | | | | | | | | | | | | 2 | 1 | | | | | | | | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 5 |
| Melville S-Rim ware: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Melville Cord Impressed | 5 | 38 | 9 | 26 | 48 | | | | 23 | | | 8 | | 3 | | 1 | | | 22 | 1 | | | | 11 | 3 | | | 1 | | | 1 | 1 | 3 | | 1 | | | 4 | | | | 13 | | | | | | 1 | | 3 | | | 226 |
| Melville Wrapped Stick Impressed | 1 | 2 | | | 2 | | | | | | | 5 | | | | | | | 5 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | 16 |
| Melville Scored | | 1 | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| Lisbon Tool Impressed | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Lisbon Undecorated | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Owego Tool Impressed | | 4 | | 3 | 3 | | | | 1 | | | 1 | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 15 |
| Ransom Cord Impressed | | | | 3 | 1 | | | | 5 | | | 1 | | | | | | | | | | | | 1 | | | | 2 | | 1 | | | | | | | | | | | | 3 | | | | | | | | | | | 17 |
| Ransom Cord-Wrapped Stick | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 |
| Stanley Cord Impressed | 4 | 10 | 3 | 6 | 7 | | | | 13 | | | 1 | | 3 | | | | | 1 | | | | | 5 | 2 | | | | | 2 | | | | | | 1 | | 1 | | | | 1 | 2 | | | | | | | | | | 62 |
| Stanley Wavy Rim (?) | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Stanley Plain | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | 6 |
| Talking Crow Indented | 2 | 1 | | 3 | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 |
| Fragmentary rim, near-rim, and shoulder sherds: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cord impressed | 19 | 89 | 12 | 82 | 111 | | | | 84 | | | 37 | | 8 | 2 | 4 | | | 94 | 2 | | | | 38 | 6 | | | 24 | | | 12 | | | | | 4 | | 11 | | | | 29 | 4 | | 2 | | | 3 | | 1 | | | 678 |
| Incised-trailed | 6 | 127 | 44 | 63 | 134 | | | 1 | 47 | | | 13 | | 6 | | 1 | | | 102 | 1 | | | | 44 | 9 | | 2 | 10 | | 1 | 9 | | | | | 1 | | 4 | | | 1 | 6 | | | | | | 3 | | | | | 635 |
| Tool impressed | | 4 | 1 | 1 | 5 | | | | 3 | | 1 | | | 1 | | | | | 5 | | | | | 1 | | | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | 26 |
| Punctated | | 4 | | 1 | 2 | | | | 1 | | | 1 | | 1 | | | | | 2 | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | 14 |
| Wrapped-stick impressed | 2 | 7 | 3 | 6 | 6 | | | | 11 | | | 4 | | | | | | | 6 | | | | | 6 | | | | 1 | | | | | | | | 3 | | 1 | | | | | | | | | | 15 | | | | | 71 |
| Dentate stamped | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | 1 | | | | | | | | | | 1 | | | | | 7 |
| Scored | 7 | 18 | 6 | 25 | 52 | | | | 8 | | | 3 | | 1 | | | | | 5 | | | | 1 | 5 | 1 | | 1 | 14 | | | 3 | | | | | 6 | | 2 | | | | | | | 1 | | | 2 | 1 | | | | 162 |
| Painted (?) | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Total | 52 | 329 | 87 | 256 | 409 | 0 | 0 | 1 | 207 | 1 | 1 | 90 | 2 | 27 | 7 | 7 | 0 | 0 | 287 | 5 | 0 | 0 | 1 | 121 | 23 | 0 | 3 | 55 | 0 | 7 | 34 | 1 | 4 | 1 | 1 | 16 | 0 | 27 | 0 | 0 | 1 | 54 | 6 | 0 | 3 | 0 | 0 | 34 | 1 | 6 | 0 | 0 | |
| Body sherds: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Simple stamped | 49 | 335 | 62 | 305 | 446 | 5 | | 14 | 90 | 3 | | 27 | 3 | 14 | 6 | 4 | 1 | | 170 | 2 | 2 | | | 66 | 18 | | 2 | 55 | 2 | 41 | 62 | 3 | 12 | 3 | 1 | 45 | 4 | 60 | 3 | | | 40 | 7 | 4 | 3 | 8 | 1 | 29 | 2 | 44 | | | 2,053 |
| Cord-marked | 2 | 31 | 13 | 44 | 87 | | | 3 | 4 | | | 16 | | 1 | | | | | 43 | 4 | | | | 1 | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | 1 | | | | | 252 |
| Smoothed | 83 | 141 | 284 | 1,198 | 1,456 | | 1 | 13 | 388 | 6 | 2 | 335 | 15 | 67 | 7 | 11 | 1 | 2 | 1,315 | 44 | | 7 | 16 | 247 | 36 | 3 | 8 | 192 | 3 | 20 | 98 | 15 | 10 | 4 | 8 | 49 | | 102 | 6 | | | 224 | 23 | 1 | 3 | 9 | 2 | 79 | | 51 | 12 | | 6,597 |
| Total | 134 | 507 | 359 | 1,547 | 1,989 | 5 | 1 | 30 | 482 | 9 | 2 | 378 | 18 | 82 | 13 | 15 | 2 | 2 | 1,528 | 50 | 2 | 7 | 16 | 314 | 54 | 3 | 10 | 247 | 5 | 61 | 160 | 18 | 22 | 7 | 9 | 94 | 4 | 163 | 9 | 0 | 0 | 265 | 30 | 5 | 6 | 17 | 3 | 109 | 2 | 95 | 12 | 0 | |
| Appendages: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Handles (strap) | 1 | 4 | | | 2 | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | 12 |
| Lugs | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Total | 1 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Split sherds | 4 | 70 | 26 | 127 | 208 | | 2 | 1 | 10 | | 2 | 31 | 10 | 3 | 1 | | | 1 | 120 | | | | 15 | 3 | 1 | | | 4 | | 12 | 11 | | | | | | | 1 | | | | 6 | | | | | | 1 | | | | | 670 |
| Grand total | 191 | 910 | 472 | 1,930 | 2,609 | 5 | 3 | 32 | 700 | 10 | 5 | 499 | 30 | 112 | 21 | 22 | 2 | 3 | 1,936 | 55 | 2 | 7 | 32 | 438 | 78 | 3 | 13 | 308 | 5 | 80 | 205 | 19 | 26 | 8 | 10 | 110 | 4 | 192 | 9 | 0 | 1 | 325 | 36 | 5 | 9 | 17 | 3 | 144 | 3 | 101 | 12 | 0 | 11,752 |

*Depths given in feet and tenths of a foot below surface.

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tures—12 in House 1, 47 in House 2 and 74 in the adjacent trash dump (XU1), 23 in both House 3 and in House 4, and one in the bower (F48). In addition, 41 specimens were found in 9 other excavation units, and 5 examples were taken from the surface.

2. A majority of the specimens of the next three commonest local rim types—Buchanan Incised-Trailed (43), Buchanan Undecorated (38), and Buchanan Cord Impressed (37)—were recovered from four (or in the case of Buchanan Cord Impressed, three) of the excavated lodges and in the trash dump near House 2, as shown below:

| Rim types | House 1 | House 2 | Trash dump (XU1) | House 3 | House 4 |
|---|---|---|---|---|---|
| Buchanan Incised-Trailed (43) | 6 | 5 | 16 | 1 | 2 (=30) |
| Buchanan Undecorated (38) | 3 | 2 | 16 | 7 | 4 (=32) |
| Buchanan Cord Impressed (37) |  | 7 | 13 | 13 | 1 (=34) |

The frequencies of the three types are incongruent, except in the trash dump. However, this circumstance is probably not significant because of the small number of specimens involved.

3. At the opposite end of the range of frequencies, the least common local rim types are Parkhurst Dentate Stamped (8), Pingree Dentate Stamped and Edmunds Dentate Stamped (5 each), Buchanan Wrapped-Stick Impressed (4), and Melville Scored (3). Examples of three of these rim types occurred in two of the four excavated lodges (and also in the trash dump, in one instance); and specimens of the other two rim types were present in the trash dump and in one of the four excavated lodges, thus:

| Rim types | House 1 | House 2 | Trash dump (XU1) | House 3 |
|---|---|---|---|---|
| Parkhurst Dentate Stamped (8) | 1 |  | 4 | 3 (=8) |
| Pingree Dentate Stamped (5) | 3 |  |  | 2 (=5) |
| Edmunds Dentate Stamped (5) | 3 |  | 1 | – (=4) |
| Buchanan Wrapped-Stick Impressed (4) |  | 1 | 1 | – (=2) |
| Melville Scored (3) |  | 1 |  | 1 (=2) |

4. By far the commonest and most widely dispersed of the "alien" (rim) types in the Hintz collection is Stanley Cord Impressed, represented by 62 examples, or 53.4 percent of the sample of 9 alien types. Specimens of this (rim) type were associated with 4 of the 5 excavated structures—4 in House 1, 13 in House 2 and 13 in the adjacent trash dump (XU1), 1 in House 3, and 13 in House 4. Furthermore, 14 examples were found in 6 other excavation units, and 4 specimens were obtained from the surface.

5. All, or a majority of, the specimens of the two next most common alien (rim) types in the Hintz sample—Ransom Cord Impressed (17) and Owego Tool Impressed (15)—were recovered from the trash dump (XU1) and two or three of the four excavated lodges, thus:

| Rim types | House 1 | House 2 | Trash dump (XU1) | House 4 |
|---|---|---|---|---|
| Ransom Cord Impressed (17) | 1 |  | 4 | 5 (=10) |
| Owego Tool Impressed (15) | 4 | 4 | 6 | 1 (=15) |

6. Of the three groups of body sherds classified according to exterior surface finish—namely, simple stamped, cord-marked, and smoothed (or "plain")—the last group includes by all odds the largest number of specimens in the Hintz collection, some 6,597 sherds, or 74 percent of the sample. Since the "smoothed," i.e., buffed, possibly scraped but not burnished, body sherds may originally have been treated with a grooved or thong-wrapped paddle (simple stamped), or a cord-wrapped paddle (cord-marked), their distribution at the Hintz site is of little interest compared to that of the *unaltered* simple stamped and cord-marked body sherds. The horizontal and vertical provenience of these two groups of sherds in the excavated structures and the other excavation units may be summarized as follows:

TABLE 4.—*Provenience of simple stamped and cord-marked sherds*

| | House 1 | | House 2 | | Trash dump (XU1) | | House 3 | |
|---|---|---|---|---|---|---|---|---|
| | 0.2–0.7 | 0.7–2.45* | 0.2–0.7 | 0.7–1.5 | 0.2–0.7 | 0.7–2.5 | 0.2–0.7 | 0.7–1.3 |
| Simple stamped (2053) | 27 | 28 | 335 | 62 | 305 | 451 | 170 | 4 |
| Cord-marked (252) | 16 | 1 | 31 | 13 | 44 | 87 | 43 | 4 |

| | House 4 | | Bower (F48) | XU4 | | XU12 | |
|---|---|---|---|---|---|---|---|
| | 0.2–0.7 | 0.7–1.1 | 0.2–1.0 | 0.2–0.7 | 0.7–1.2 | 0.2–0.7 | 0.7–1.2 |
| Simple stamped (2053) | 90 | 3 | 55 | 66 | 18 | 12 | 3 |
| Cord-marked (252) | 4 | ---- | ---- | 1 | ---- | ---- | ---- |

* The depth-below-surface categories given here are *generally*, but not entirely, mutually exclusive categories, as will be seen in table 3.

In addition, some 318 simple stamped body sherds were found in 15 other excavation units (at depths ranging from surface to 0.4 foot, and from 0.2 foot to 1 foot), for a total of 1,947 sherds, or 94.8 percent of the total sample of simple stamped body sherds from the Hintz site. Also in addition to the above, three cord-marked body sherds were obtained from three other excavation units (at depths ranging from 0.2 to 0.7 foot, and from 0.2 foot to 1 foot), for a total of 247 sherds, or 98 percent of the total sample of cord-marked body sherds from the Hintz site.

Examples of both simple stamped and cord-marked body sherds occurred in all four of the major excavated structures, and in the trash dump (XU1) adjoining House 2. The proportion of simple stamped and of cord-marked body sherds relative to the entire sample of each group from the Hintz site is very nearly comparable in only one structure, House 2, with 19 percent of the whole sample of simple stamped sherds and 17 percent of the whole sample of cord-marked body sherds. The proportion of cord-marked sherds (to the whole sample) is more than twice that of simple stamped sherds (to the entire sample) in House 1 and House 3, and nearly twice as much as that of simple stamped sherds in the trash dump (XU1); and the converse obtains in House 4, thus:

| Surface finish | House 1 | House 2 | Trash dump (XU1) | House 3 | House 4 |
|---|---|---|---|---|---|
| | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* |
| Simple stamped | 3 | 19[illegible] | 37 | 8 | *5 |
| Cord-marked | 7 | 17 | 52 | 19 | *2 |

* Of whole sample.

With regard to the number of simple stamped and cord-marked sherds in the two depth categories arbitrarily defined in the major excavated structures, it may be pointed out that the frequencies of both groups of sherds are clearly greater in the upper layer (0.2 to 0.7 foot below surface) in House 2 and House 3. The converse is true with respect to the two layers defined in the trash dump (XU1).

As far as the overall distribution of simple stamped and cord-marked body sherds at Hintz goes, it may be observed that while simple stamped sherds occurred in 22 of the 25 excavation units, cord-marked sherds were found in only 8 of the 25 excavation units.

To sum up: It may be stated that the horizontal and vertical provenience of the simple stamped and cord-marked body sherds in the excavated structures and in the other excavation units at the Hintz site indicates that, whereas simple stamping and cord-marking coexisted in the Hintz component, they were by no means coextensive therein. The relatively high frequency and near-ubiquity of simple stamped sherds, compared to the relative scarcity and restricted distribution of cord-marked sherds, in the Hintz sample, seem to imply (1) a cultural static—the greater popularity of simple stamping over cord-marking, and (2) a cultural dynamic—the supplanting of cord-marking by simple stamping in the Hintz component. The latter phenomenon is apparent, I believe, in two components recently analyzed in the Missouri River valley near Pierre, S. Dak. The replacement of cord-marking (or "cord roughening") by simple stamping is a *fait accompli* in the Phillips Ranch component of the Snake Butte Focus (Lehmer, 1954, p. 100, table 4), which may be closely contemporaneous with the Hintz component. The displacement of cord-marking (or "cord roughening") by simple stamping seems to be well on the way in the component of the Stanley Focus at the Dodd site (Lehmer, op. cit., p. 81, table 1), which is judged to be slightly earlier than the Phillips Ranch component.

*Characterization.*—The ceramic complex of the Hintz component, irrespective of rim and body sherd types and groupings, exhibits the following attributes, listed under eight heads:

Paste: Fine sand or grit-tempered, unslipped, buff to dark gray in color.

Technique of manufacture: Probably lump modeled, then thinned with paddle and anvil.

Lip form: Rounded, flattened, beveled, everted, pointed, or interiorly or exteriorly extruded.

Rim form: Incurved, flared (unthickened, or exteriorly thickened or "braced," or exteriorly thickened and beveled or "wedge-shaped"), collared, or recurved or S-shaped.

Vessel form: Globular jars of apparently small size.

Decorative treatment: Undecorated, or decorated with rectilinear or rarely curvilinear dentate stamped, incised-trailed, cord impressed, tool impressed, punctated, wrapped-stick impressed, check stamped, or painted designs on the lip, exterior and/or interior rim surfaces, and the shoulder area.

Surface finish (of bodies): Simple stamped, cord-marked, or smoothed.
Appendages: Strap handles and lugs (rare).

*Comparisons.*—By comparing the presence and absence of certain attributes of the ceramic complexes of the Hintz component and of one focus and three sites (or components) which lie within a radius of 190 airline miles of, and are apparently very nearly contemporaneous with, the Hintz site, it may be practicable to suggest the cultural affinity and possible authorship of the Hintz component. The quality and range of the attributes used for comparison are limited by the information now available. While it would be highly desirable to give weight to these attributes (by frequencies) and to show their associations within each complex, it is not possible to do so because of the differences in the provenience and size of the samples and the lack of correlated data, except in the case of one complex, as noted below.

The focus referred to above is the Painted Woods Focus, recognized and named by A. W. Bowers (MS., pp. 28–80, figs. 1, 4, and 14, and tables 1–3). To this focus Bowers assigns, or tentatively assigns, 17 sites or components of sites on both sides of the Missouri River, from Mannhaven southward to just above Harmon in central North Dakota, and the Schultz site on the lower Sheyenne River in southeastern North Dakota. In his unpublished study, Bowers presents data on the pottery which he himself gathered from 10 of the 17 sites or components in the Missouri valley— Sites 34 (Lower Hidatsa), 32 (Awaxawi), 21, 12 (Stanton Ferry), 10 (Fort Clark Station), 48 (Bagnall), 125 (Gaines), 126 (Mile Post 28), 9 (Upper Sanger), and 23 (Eidelbrock)—and on pottery collected by E. A. Milligan from the Schultz site. Bowers attributes the Painted Woods Focus sites or components of sites in the Missouri valley to the Hidatsa, following their identification by aged native informants in 1930 as traditional Hidatsa sites (op. cit., p. 38). Bowers assigns the Schultz site, located in a "region traditonally occupied by the various Hidatsa groups," to the Painted Woods Focus on the basis of ceramic analogies with sites or components of this focus in the Missouri valley; but at the same time he thinks that the high frequencies of cord-marked and check stamped sherds in the Schultz collection reflect close ties respectively with the Great Oasis Aspect to the southeast and the Devils Lake region to the north (op. cit., p. 44).

The other ceramic complexes with which the Hintz complex will be compared are represented by samples obtained from the following sites (or components):

1. The Old Fort Abraham Lincoln or Slant Village site, a fortified earthlodge village on the west side of the Missouri River just below

Bismarck, N. Dak., which is identified on native testimony as a site abandoned by the Mandan about A.D. 1764. The site was partly excavated by W. D. Strong in 1938. The preliminary description of the pottery (Strong, 1940, p. 364, and pl. 5) is based in part on a statistical analysis made by Carlyle S. Smith. (In November 1954 Dr. Smith furnished me an annotated copy of a chart showing correlations of rim decoration and rim form for 720 rim sherds, and of surface finish and rim form for 315 body sherds, from Slant Village; and Dr. Strong, in a letter dated March 31, 1955, granted me permission to use these data. But I will not introduce the correlated statistical data here because this is the only comparative collection I am utilizing which has been treated in this manner.)

2. The Sheyenne-Cheyenne or Biesterfeldt site, on the lower Sheyenne River in southeastern North Dakota. This fortified earthlodge village, partially excavated by Strong in 1938, is identified on native testimony as a Cheyenne site which was attacked and burned by the Chippewa. Its destruction occurred, according to Strong's estimate, circa A.D. 1770. Descriptions of the pottery obtained from the site have been published by Strong (op. cit., pp. 373–374, and pl. 8) and by Wood (1955).

3. The Buffalo Pasture site on the right bank of the Missouri River, about 8 river-miles above Pierre, S. Dak. This fortified earthlodge village and two other earthlodge sites upstream, the Fort Sully and Lower Cheyenne River sites, were excavated or sampled by a Columbia University expedition in 1939 under the direction of Strong, who identified them as Arikara "in origin," on comparision with the slightly later, well-documented Leavenworth or Lewis and Clark site on the right bank of the Missouri above the mouth of the Grand River. The pottery from the three sites has been described briefly and collectively by Strong (op. cit., pp. 380–381, and pl. 9). It should be noted that further, extensive excavations conducted by the Missouri Basin Project in 1951–1958 at the three sites have revealed that two of them, the Fort Sully and Lower Cheyenne River sites, are multicomponent sites, and that only the latest major component in each case seems to be identifiable, like the single component at the Buffalo Pasture site, as "protohistoric Arikara." Reports of these investigations are now in preparation.

The five ceramic complexes, numbered 1 to 5, are compared with respect to 22 attributes in table 5. An "x" under a given complex means that the attribute is present therein. Occasionally the "x" is modified by "rare" or an arabic numeral in parentheses. The latter indicates the few actual specimens recorded.

TABLE 5.—*Attributes of five ceramic complexes*

| Attributes | 1. Hintz | 2. Painted Woods | 3. Old Fort A. Lincoln or Slant | 4. Sheyenne-Cheyenne or Biesterfeldt | 5. Buffalo Pasture |
|---|---|---|---|---|---|
| Rim form: | | | | | |
| Incurved | x(8) | | | | |
| Flared (unthickened) | x | x | x | x(rare) | |
| Braced | x | x | x | x(rare) | x |
| Wedge-shaped | x | x | | x | |
| Collared | x(5) | | | | |
| Recurved or S-shaped | x | x | x | | |
| Decoration—on lip, rim, and or shoulder: | | | | | |
| Dentate stamped | x | | | | |
| Incised-trailed | x | x | x(4) | x | x |
| Cord impressed (single cord). | x | x | x | x | x(rare) |
| Tool impressed | x | | | x | x |
| Punctuated | x | x | | x | x |
| Wrapped-stick impressed. | x | x | x(7) | x | |
| Check stamped | x | x | | | |
| Scored ["grass-rubbed" or "brushed"]. | x | | x | x | x |
| Roulette | | x(rare) | | x(rare) | |
| Painted (?) | x(2) | | x(1) | | |
| Inset beads or impressions thereof. | | | | x(7) | |
| Surface finish—exterior surface: | | | | | |
| Simple stamped | x | x | x | x | x |
| Cord-marked | x | x | | | |
| Check stamped | x | x | x(1) | | |
| Smoothed ["plain"] | x | x | x | x | x |
| Red film—on interior surface: | x(1) | | x(2) | x | |

Analysis of the tabulated data yields the following information in regard to the distribution and sharing of the 22 attributes among the five ceramic complexes:

a. Distribution of attributes:

1. Five attributes occur in all five complexes: Braced rim form (rare in 4); incised-trailed decoration (rare in 3); single cord impressed decoration (rare in 5); and simple stamped and smoothed or "plain" surface finish.

2. Four attributes are present in four of the five complexes: Flared (unthickened) rim form (rare in 4, absent in 5); punctated decoration (absent in 3); wrapped-stick impressed decoration (rare in 3, absent in 5); and scored or "grass rubbed" or "brushed" decoration (absent in 2).

3. Five attributes are present in three of the five complexes: Wedge-shaped rim form (absent in 3 and 5); recurved or S-shaped rim form (absent in 4 and 5); tool impressed decoration (absent in 2 and 3); check stamped surface finish (rare in 3, absent in 4 and 5); and red film (rare in 1 and 3, absent in 2 and 5).

4. Three attributes occur in two of the five complexes: Check stamped decoration (absent in 3, 4 and 5); painted (?) decoration (rare in 1

and 3, absent in 2, 4 and 5); and cord-marked surface finish (absent in 3, 4 and 5).

5. Three attributes—incurved rim form, collared rim form, and dentate stamped decoration—appear to be present only in 1; and one attribute—inset beads or impressions thereof—seemingly occurs only in 4.

b. Sharing of attributes:

The Hintz ceramic complex (1) shares 13 attributes with the Painted Woods complex (2); 12 attributes with the Old Fort Abraham Lincoln village complex (3)—with two of these attributes rare in both complexes and three rare in the latter; 12 attributes with the Sheyenne-Cheyenne complex (4)—with one of these attributes rare in the Hintz complex and two rare in the Sheyenne-Cheyenne complex; and eight attributes with the Buffalo Pasture complex (5)—with one of these attributes rare in the latter.

In terms of the number of shared attributes, the Hintz ceramic complex (1) is least like the Buffalo Pasture complex (5) and most like the Painted Woods complex (2). Furthermore, two attributes present in (1) and (2)—check stamped decoration and cord-marked surface finish—are not reported from (3), (4), and (5); they appear to set off clearly the former two complexes from the latter three.

The numerous analogies between the Hintz and Painted Woods ceramic complexes indicate, I believe, that the former is intimately related to the latter, and that the authors of the Painted Woods ceramic complex, tentatively identified as the Hidatsa, may also have been responsible for the Hintz ceramic complex.

### UTILIZED POTTERY SHERDS

Two utilized pottery sherds are present in the Hintz collection. One, subcircular in outline, is 31 mm. in maximum diameter and 4.5 mm. in maximum thickness. Derived from a grit-tempered, unslipped, dark-gray, smoothed body sherd, the object is roughly trimmed around the periphery. The interior surface bears several shallow striations which tend to radiate from an approximate center.

The other specimen, subrectangular in outline, is 33 mm. in maximum length, 25 mm. in maximum breadth, and 6.75 mm. in maximum thickness. Based on a grit-tempered, unslipped, dark-gray, cord-marked sherd, this object is roughly trimmed on three sides and smoothed along most of the fourth side and around one corner. The interior surface bears numerous shallow striations, directed at random.

Both objects may have been used in a game, possibly the hand game.

### STONE OBJECTS

Some 367 whole or broken chipped, battered, abraded, and polished stone objects were obtained from the surface and the excavations at

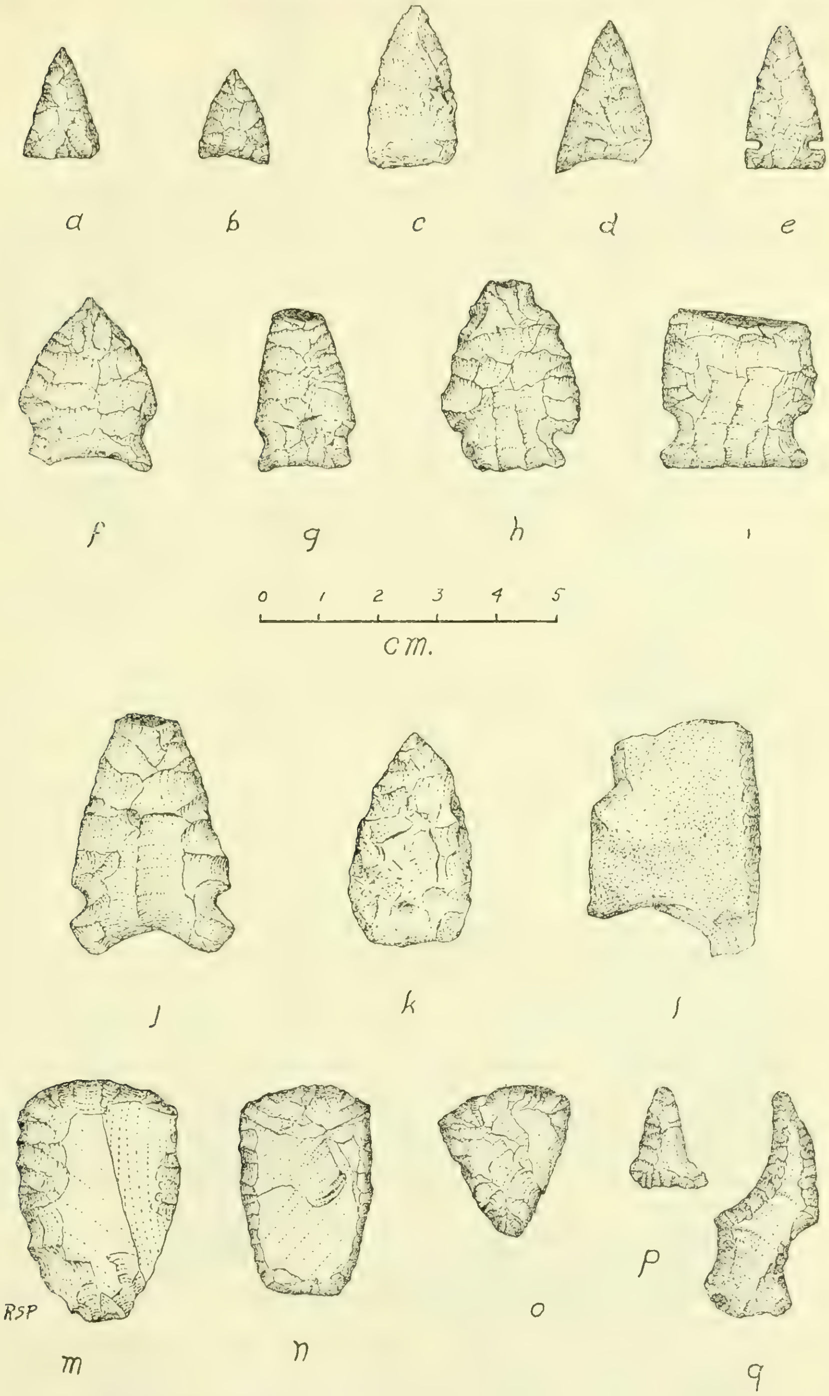
a
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FIGURE 33.—Representative chipped stone artifacts, Hintz site.

the Hintz site in 1946, 1952, and 1954. The specimens are described as follows.

*Projectile points* (73 complete or incomplete but identifiable specimens, and 92 unclassifiable fragments). Four styles of points are present:

Small triangular points with straight or slightly convex sides and straight or concave base (37 examples; fig. 33, *a–d*). Made principally of chalcedony and quartzite, and usually fully retouched on both faces, these specimens weigh between 0.3 and 1.7 gm.

Small bilaterally side-notched points, with straight base (25 examples; fig. 33, *e*). Made largely of chalcedony and fully retouched on both faces, these specimens weigh between 0.9 and about 2.0 gm.

Small triangular point with single notch at the base (one example). Made of quartzite and fully retouched on both faces, the specimen weighs 0.6 gm.

Stemmed points, with straight or convex sides, barbed or weakly barbed shoulders, expanding stem narrower or rarely wider than the shoulders, and straight, sometimes smoothed base (ten examples; fig. 33, *f–j*). Made of chalcedony or quartzite and fully retouched on both faces, the measurable specimens weigh from about 1.7 to 8.0 gm. These points may be regarded as "heirloom" pieces derived from complexes much older than the one represented at the site.

*Projectile point "rejects"* (3 examples). Subtriangular in outline and only partially retouched, these specimens, in jasper and quartzite, weigh from 2.1 to 2.8 gm.

*Knives* (53 whole or broken specimens; fig. 33, *k*). Intact specimens are generally small and subtriangular or ovate. Made principally of chalcedony and quartzite, the specimens show varying degrees of finish by pressure retouch.

*Flake scrapers* (48 specimens; fig. 33, *l*). These are generally small, occasionally medium-size random flakes (mainly of chalcedony, with a single example of obsidian), unifacially retouched along one or more edges.

*End scrapers* (65 whole or fragmentary specimens; fig. 33, *m–o*). These small, subtriangular to subrectangular specimens, made almost exclusively of brown chalcedony, are unifacially retouched over the entire convex face, or along all edges, or along the chamfered working edge only.

*Drills* (4 specimens; fig. 33, *p*, *q*). These small specimens, all of chalcedony, are T-shaped, sickle-shaped, or stemmed. They are fully retouched on all faces or along the edges of the convex face only (fig. 33, *q*).

*Arrowshaft-cutters* (2 specimens.) Made in chalcedony and flint, each small specimen has a prepared concave inset on one side which would be suitable for cutting reeds or twigs for arrowshafts.

*Choppers or scrapers* (3 specimens). Three large core-tools of chert and quartzite, roughly chipped by percussion, would have served as choppers or scrapers.

*Hand-hammers* (15 specimens, fig. 34, *g*). One discoidal object of quartzite, illustrated, and 14 amorphorous objects of quartzite and granite (drift cobbles?) show varying degrees of battering as though they had served as hammers or pounders.

*Three-quarter-grooved hammer* (1 specimen). This object, of indurated sandstone, has a flattened bit and rounded poll. The carefully pecked groove runs across both faces and one edge about midway between the bit and poll.

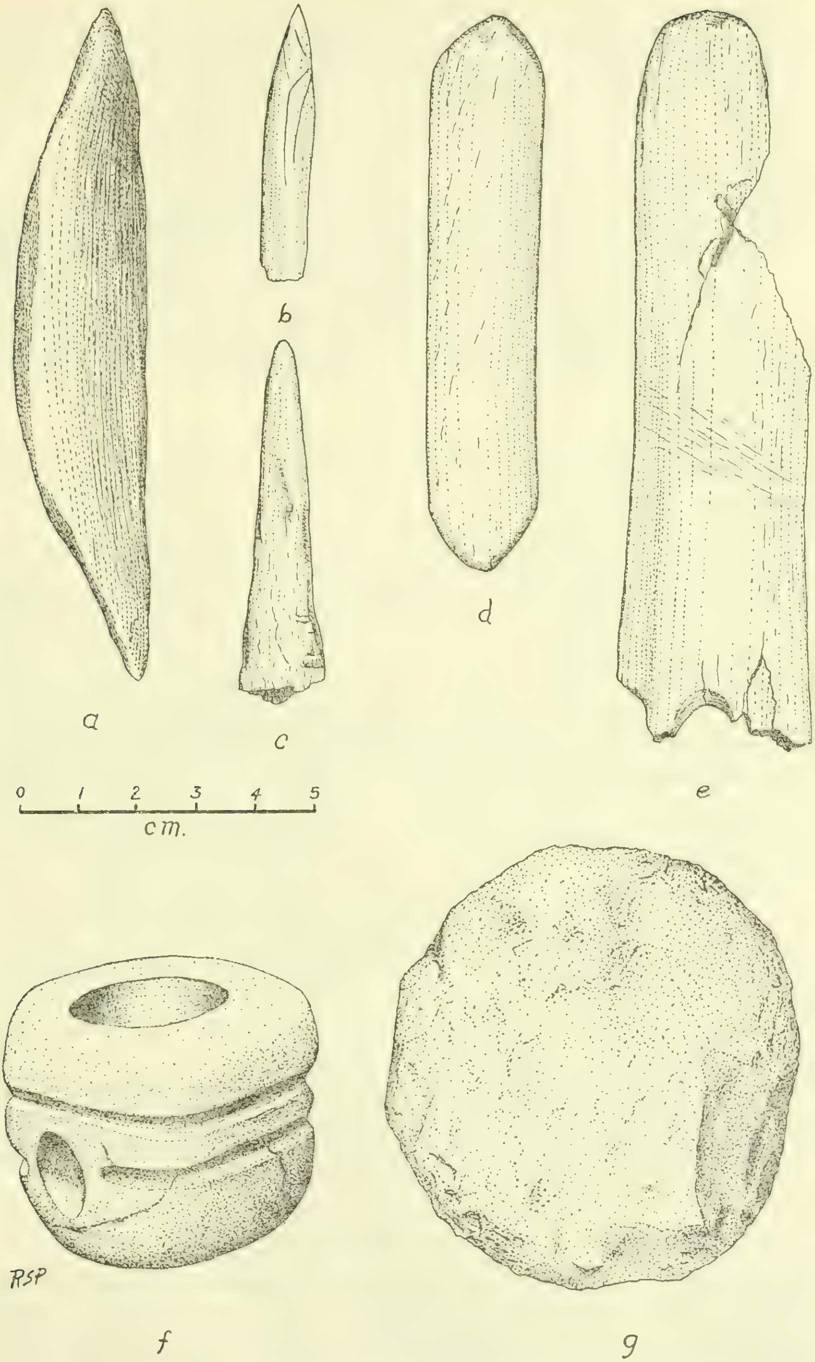

a
b
c
d
e
0 1 2 3 4 5
cm.
RSP
f
g

Figure 34.—Selected bone artifacts and ground and battered stone artifacts, Hintz site.

*Full-grooved hammer* (1 specimen). This object, of granite, has a pointed bit and rounded poll, and bears a neatly executed groove, bordered by rounded ridges, which completely encircles the object at about the midpoint except for an intentional break at the top.

*Anvils* (4 specimens). These fragmentary (?) objects, of granite or indurated sandstone, have a "working" surface which may have served as an "anvil."

*Pipes* (1 complete specimen and 2 fragments; fig. 34, *f*). The complete specimen, of limestone, which is illustrated, is cuboid in form, with a neatly drilled stem-hole and two horizontal, deeply incised lines encircling the bowl. The top and sides are ground smooth. The pipe fragments consist of the mouthpiece (?) of a tubular pipe of steatite, finely polished, and the body fragment of a tubular (?) pipe of catlinite which bears striations on the convex surface, resulting from smoothing down the specimen.

### BONE AND TOOTH OBJECTS

Thirty-three objects of bone and teeth recovered from the Hintz site include:

*Awls* (6 whole or broken specimens; fig. 34, *b*, *c*). Made of splinters, these objects vary from neatly worked to roughly pointed specimens.

*Flakers* (4 specimens; fig. 34, *a*). Tough, bluntly pointed and smoothed fragments of bone, these specimens would have served well as flakers in knapping stone tools.

*Quill flatteners or pottery tools* (12 complete or fragmentary specimens; fig. 34, *d*). These specimens are made of ribs and are nicely worked on one or both ends. They have been frequently identified as flatteners for porcupine quills. I have recently suggested that an alternative use might be as tools for modeling and decorating pottery vessels (Wheeler, 1956).

*Shaft wrench* (1 specimen; fig. 34, *e*). This specimen, broken in the middle(?), is made of a rib, has one perforation and a nicely rounded end.

*Scapula hoes* (1 complete and 1 broken specimen). The two examples present have intact heads and a perforation in the center of the body, presumably made for attaching the wooden (?) haft.

*Paint-brushes* (3 specimens). These porous specimens, roughly circular in form, are made from the head of bison femora.

*Beads* (2 fragments). These tiny fragments, of bird or small animal bone, appear to be sections of small tubular beads.

*Worked teeth* (2 specimens). One large and one small canine tooth are smoothly worn, as though they had been used.

*Worked bone* (1 specimen). One longitudinal section of a long bone is smoothed and polished, as though it had served some purpose.

### SHELL OBJECTS

Four small and three large irregularly shaped pieces of worked shell may have been pendants or parts thereof. The large specimens are *Busycon contrarium* from the Gulf of Mexico. One of these pieces bears a perforation near an end.

### REFUSE MATERIALS

Materials grouped under this heading include chipping debris, bone-working debris, minerals, and faunal and vegetal remains, described as follows.

*Chipping debris.*—Several hundred cores and flakes, the residuum of stone chipping, were collected and saved from the Hintz site. The materials are principally of chalcedony, jasper, and quartzite, of varying texture and colors.

*Bone-working debris.*—One head of a scapula, and one articular joint of a long bone, of bison, appeared to have been cut by chopping or slicing.

*Minerals.*—One lot of powdered limonite and two rounded pieces of hematite appeared to have been used by the Hintz people as pigments.

*Faunal remains.*—Of the thousands of unworked bones and teeth and bits of bone and tooth scrap collected at Hintz, the following were identified:

| *Mammal* | *No. of specimens* |
|---|---|
| Bison, *Bison bison* | 143 mature and immature |
| Deer or pronghorn | 4 mature |
| Badger, *Taxidea* | 1 mature |
| Gray fox, *Urocyon* | 4 mature |
| Dog or coyote, *Canis* | 16 mature |
| Skunk, *Mephitis* | 1 mature |
| Beaver, *Castor* | 4 mature |
| Whitetail jackrabbit, *Lepus* | 1 mature |
| Pocket gopher, *Thomomys* | 1 mature |
| Ground squirrel, *Citellus* | 12 mature |

Of the numerous unworked mussel-shell fragments returned from Hintz, these lots of specimens were identified:

| *Species* | *No. of lots* |
|---|---|
| *Anodonta grandis plana* Lea | 1 |
| *Lampsilis siliquoidea* (Barnes) | 18 |
| *Lasmigona complanata* (Barnes) | 16 |

*Vegetal remains.*—The only identifiable specimens in this category that were obtained from the Hintz site were charred and uncharred pits of wild plum, *Prunus americana.*

### THE JOOS SITE, 32SN30

This site lay on the treeless, boulder-strewn crest of a ridge, a north–south outlier of the high bluff along the west side of the James River, in NW¼NW¼, sec. 12, T. 140 N., R. 64 W., about ⅗ mile south of the Hintz site. The site occurred in a large permanent pasture.

Located in August 1952 by two members of the Missouri Basin Project field party which was then excavating at Hintz, the Joos site, named for the cooperative landowner, was found to exhibit five small circular or oval depressions. Three of these depressions occurred in a cluster near the south end of the ridge; a single depression lay at the north end, and a single depression occurred at about the midpoint of the ridge. The features, each encircled by a doughnut-shaped ring of earth and boulders (frequently dislodged), appeared to be man-made constructions, although the only superficial evidence of human occupancy of the entire area consisted of one shell fragment.

## EXCAVATION PROCEDURE

The five boulder-filled depressions noted at the Joos site were excavated and plotted according to individual 5-foot grids oriented on magnetic north, and the area in which they occurred was mapped and sketched, in mid-August 1952 (fig. 35). The first excavation, designated XU1, was made in the depression near the midpoint of the ridge; the depression was labeled Feature 1 (F1). Excavations were then carried on in the cluster of three depressions; the area was called XU2 and the depressions were labeled Features 1–3 (F1–F3). Lastly, the single depression at the south end of the ridge was opened. This area was designated XU3 and the depression area was labeled Feature 1 (F1). In each case, the stones were carefully removed from the depression, and the silt filling the interstices was passed through screens of ⅜-inch mesh.

## SETTLEMENT FEATURES AND BURIALS

The five small circular or oval, earth-and-boulder ringed depressions excavated at the Joos site, the only "settlement features" discovered at the site, are described in outline form below.

FEATURE 1 (F1) in XU1; fig. 36, *a*.

*Shape:* Small, circular; diameter of depression, 8.2 feet; maximum width of encircling ring, 2.1 feet.

*Depth:* 1.35 to 1.75 feet, measured from a straight-edge laid across the tops of the boulders in the surrounding ring.

*Fill:* Random boulders, and an upper stratum of buff-colored wind-blown sand (0.3 to 0.8 foot thick) and a lower stratum of dark sand (0.85 to 0.95 foot thick). The latter was underlain by sterile shale, which was excavated to a maximum depth of 1.45 feet below the sand.

*Contents:* Three body sherds, waste flakes, an animal bone and four animal-bone fragments, two lots of decayed charred wood, and one lot of finely-divided charcoal.

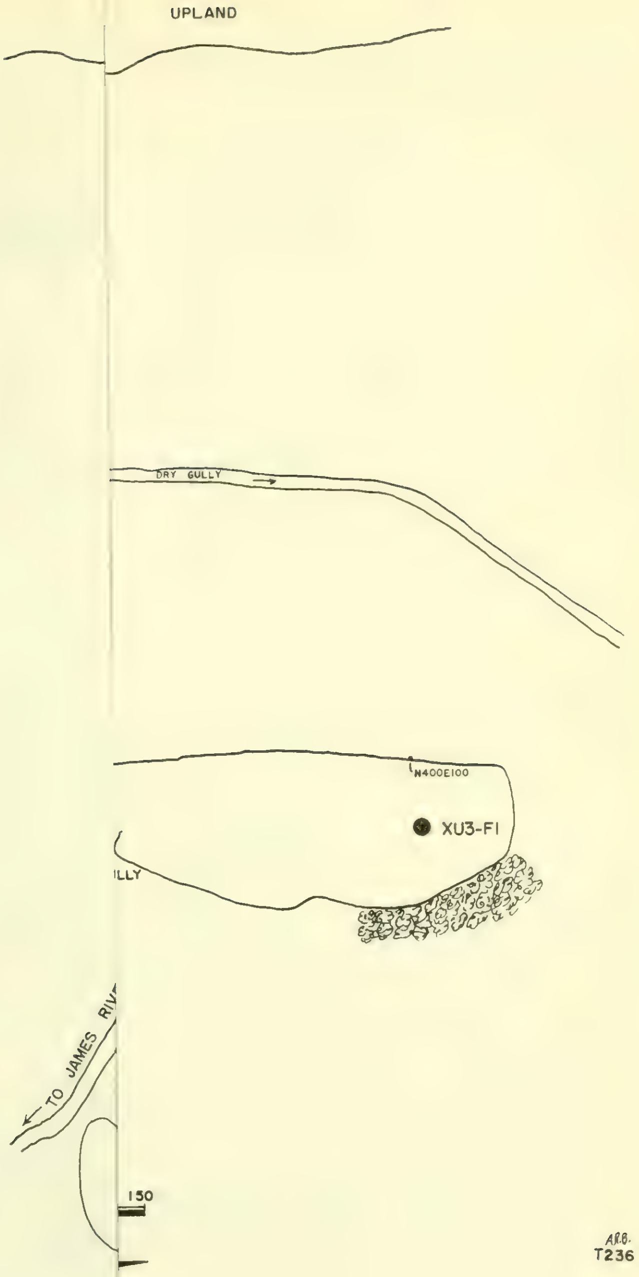
*Other features:* None.

*Preservation:* Fair; some of the boulders in the ring appeared to have been displaced by grazing animals and slope wash.

FEATURE 1 (F1) in XU2; fig. 37, *a*.

*Shape:* Small, circular; diameter of depression, 7.4 feet; maximum width of encircling ring, about 2.2 feet.

*Depth:* 2.0 feet, measured from a straight-edge laid across the tops of the boulders in the surrounding ring.


UPLAND
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N400E100
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LLY
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150
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T236

30

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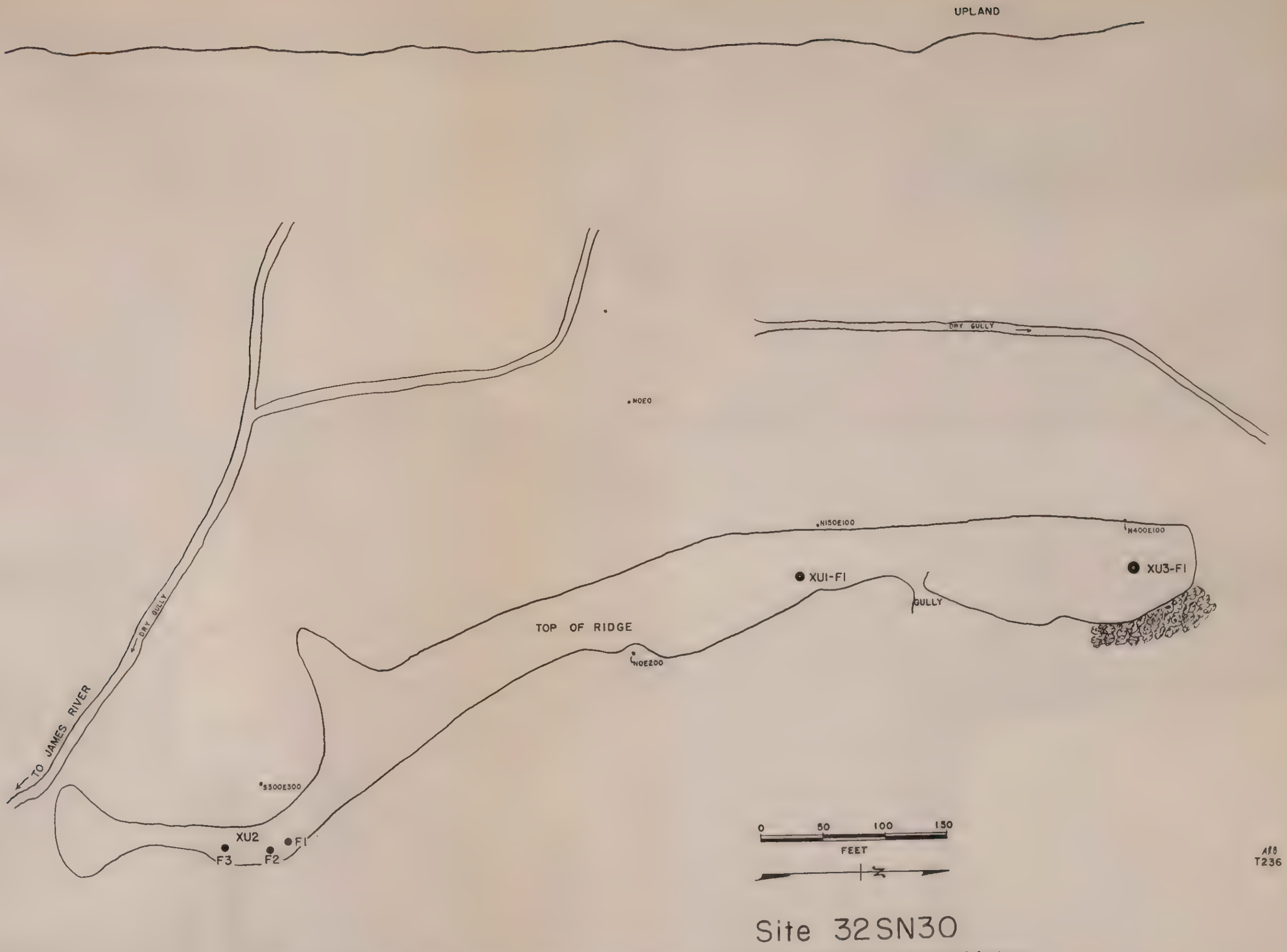
UPLAND
DRY GULLY
N0E0
DRY GULLY
TO JAMES RIVER
N150E100
N400E100
XU1-F1
XU3-F1
GULLY
TOP OF RIDGE
N0E200
S300E300
XU2
F1
F2
F3
0
50
100
150
FEET
N
ABB
T236
Site 32SN30

FIGURE 35.—Map of the Joos site, showing the locations of the excavation units XU1–XU3, and features.

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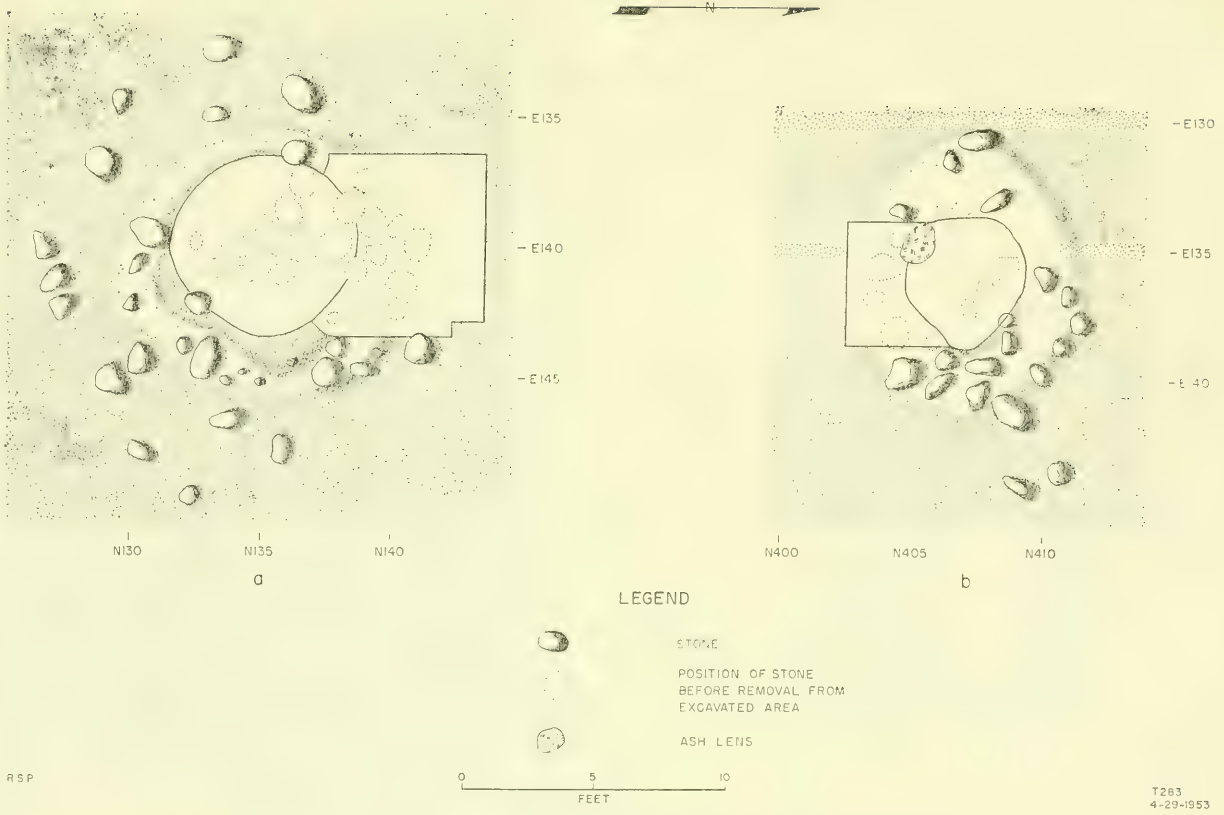

N
– E135
– E140
– E145
N130
N135
N140
a
– E130
– E135
– E 40
N400
N405
N410
b
LEGEND
STONE
POSITION OF STONE
BEFORE REMOVAL FROM
EXCAVATED AREA
ASH LENS
0
5
10
FEET
RSP
T283
4-29-1953

Figure 36.—*a*, Plan of Feature 1, XU1. *b*, Plan of Feature 1, XU3, Joos site.

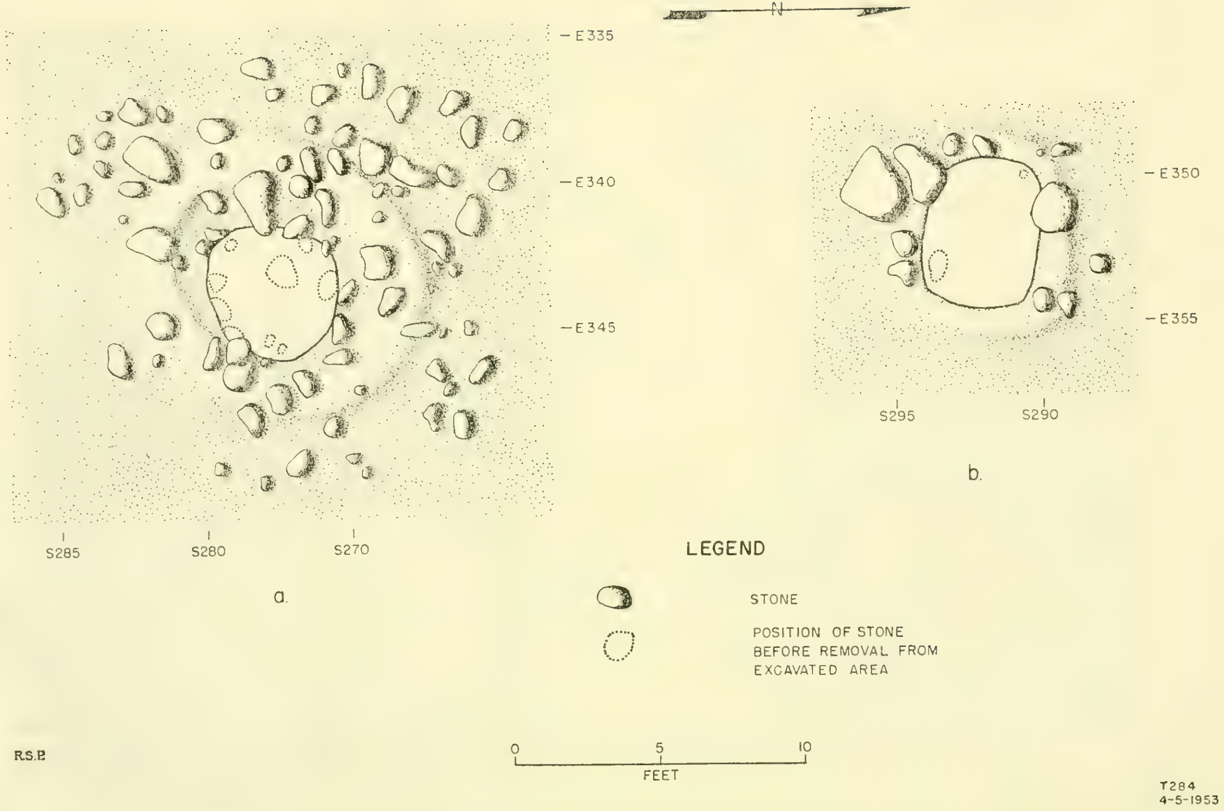

N
E335
E340
E345
S285
S280
S270
a.
E350
E355
S295
S290
b.
LEGEND
STONE
POSITION OF STONE
BEFORE REMOVAL FROM
EXCAVATED AREA
0
5
10
FEET
R.S.P.
T284
4-5-1953

Figure 37.—*a*, Plan of Feature 1, and *b*, plan of Feature 2, XU2, Joos site.

*Fill:* Random boulders, and an upper stratum of buff-colored sand and a lower stratum of dark sand. The latter was underlain by sterile shale, which was excavated to a maximum depth of 0.6 foot below the sand.

*Contents:* None.

*Other features:* None.

*Preservation:* Fair; many boulders dislodged by grazing animals and slope wash.

FEATURE 2 (F2) in XU2; fig. 37, *b*.

*Shape:* Small, roughly oval; maximum length of depression, 5.2 feet east–west; maximum width of depression, 4.1 feet north–south; maximum width of surrounding ring, about 1.25 feet.

*Depth:* 1.7 feet, measured from a straight-edge laid across the tops of the boulders in the surrounding ring.

*Fill:* Random boulders and dark sand above sterile shale, which was penetrated to a depth of 1.5 feet.

*Contents:* A few animal-bone scraps, one charred fruit pit, and some finely-divided charcoal.

*Other features:* None.

*Preservation:* Fair; a few boulders displaced by grazing animals and slope wash.

FEATURE 3 (F3) in XU2; fig. 38, *a* and *b*.

*Shape:* Small, subcircular; diameter of depression, 7.4 feet; maximum width of surrounding ring, about 2.0 feet.

*Depth:* Generally 2.5 feet, with a central basin-shaped pit between 2.5 and 2.8 feet.

*Fill:* Random boulders and dark sand, from 0.2 to 2.3 feet; clay from 2.3 to 2.5 feet; shale below 2.5 feet to unknown depth.

*Contents:* One phalange and six fragmentary long bones and a tarsal bone of a secondary human burial (Burial 2, of indeterminate sex and age), found between two boulders surrounding the depression, at a depth of 0.4 feet; one skull fragment, one mandible, and 197 fragmentary bones of a secondary human burial (Burial 1, an adult of uncertain sex), uncovered in the central depression at a depth of 2.5 to 2.8 feet (fig. 38, *b*); and one broken projectile point, one modified and one unworked flake, 48 human-bone fragments, an animal-bone fragment and a bird bone, and broken mussel shells, obtained from the matrix between the surface and 2.0 feet below the surface. Sticks, 0.2 foot in diameter, found in the clay stratum, suggest that some sort of cribwork had been built over the basin-shaped pit containing Burial 1.

*Other features:* Burials 1 and 2 (secondary human burials), mentioned above.

*Preservation:* Fair; some boulders displaced by grazing animals and slope wash.

FEATURE 1 (F1) in XU3; fig. 36, *b*.

*Shape:* Small, circular; diameter of depression, 5.3 feet; maximum width of surrounding ring, 3.1 feet.

*Depth:* Maximum in the depression, 2.7 feet; maximum in an area adjoining the depression on the south, 0.7 foot.

*Fill:* An ash lens at a depth of 0.3 foot; refuse-bearing buff-colored sand, with random boulders, down to sterile shale.

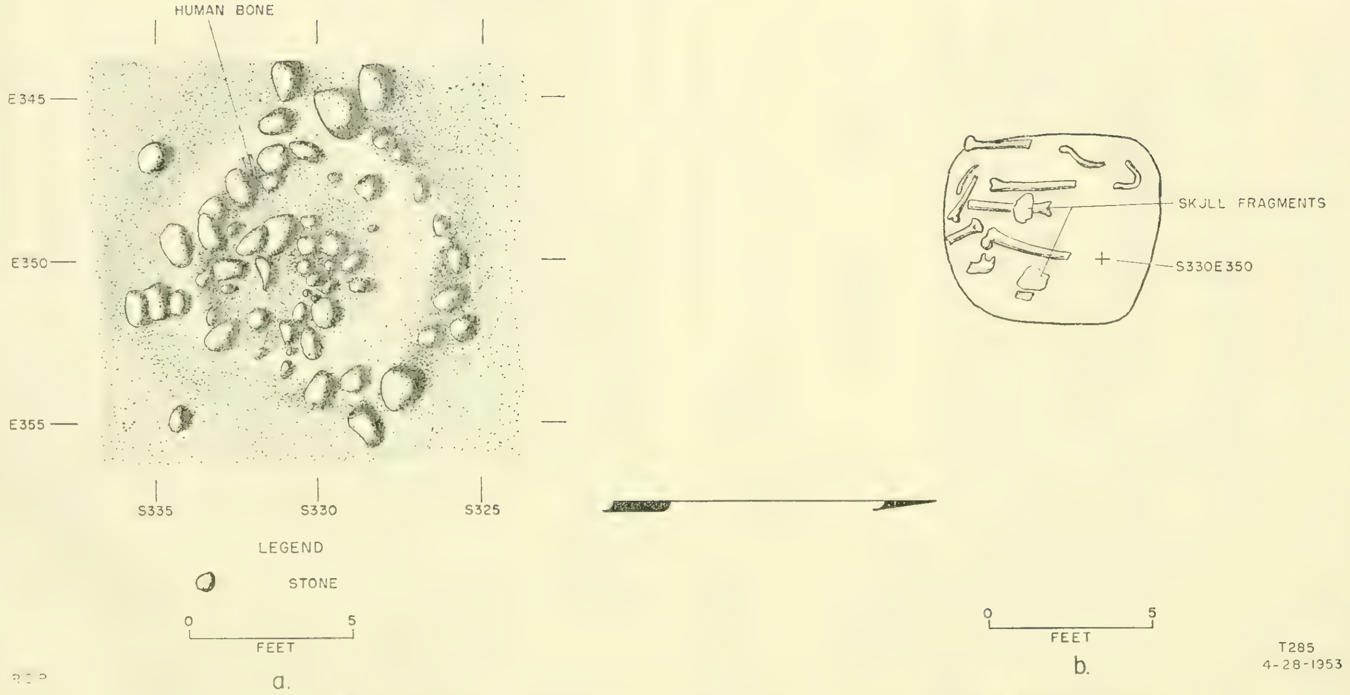

HUMAN BONE
E345
E350
E355
S335
S330
S325
LEGEND
STONE
0
5
FEET
a.
SKULL FRAGMENTS
S330E350
0
5
FEET
b.
T285
4-28-1953

Figure 38.—*a*, Plan of Feature 3 (unexcavated), and *b*, plan of Feature 3 (excavated), XU2, Joos site.

*Contents:* Four rim or near-rim and 100 body sherds, a projectile point and point fragments, modified and unmodified flakes, and shell fragments, between 0.2 foot and 1.6 feet.

*Other features:* None.

*Preservation:* Good, with only a few boulders seemingly displaced by grazing animals.

The foregoing data may be summarized as follows. Five small circular or oval pits, each surrounded by a ring of earth and boulders, occurred in a cluster of three or singly, at widely spaced intervals, on the crest of a ridge along the west side of the James River. The pits, measuring 5.3 to 8.2 feet in maximum diameter and from 1.7 to 2.7 feet in maximum depth, contained varying amounts of occupational detritus. In one case (Feature 3 in XU2), the pit also held the remains of at least two secondary burials. It may be presumed that the pits were once covered with a light wooden frame on which were placed brush and grass.

The location, the shapes and diameters of the pits, and their presumed covering, suggest that they are identifiable as eagle-trap pits (see Will, 1924, p. 298; Wilson, 1928, pp. 212–213; and Bowers, 1950, pp. 206–208). While the pits, as excavated, were uniformly too shallow to permit a man to sit or even crouch within them, they may have been considerably deeper if the boulders encircling the pits had been piled one on the other. The presence of two or more secondary burials in one pit indicates a secondary, possibly ritualistic, function which the pits sometimes served.

## ARTIFACT INVENTORY

The short artifact inventory of the Joos site includes small samples of pottery sherds and chipped stone objects.

### POTTERY

*Rim and near-rim sherds.*—Three rim-and-lip sherds are identifiable, respectively, as Buchanan Undecorated, Pingree Cord Impressed (with the cord having a Z-twist), and Melville Wrapped-Stick Impressed types. Ten near-rim (or shoulder?) sherds of unidentifiable type bear closely spaced trailed or incised lines on the exterior surface, and one near-rim (or shoulder?) sherd bears a single cord impressed line, with the cord having a Z-twist.

*Body sherds.*—The 95 body sherds include 3 simple stamped, 2 cord-marked, 82 smoothed, and 8 longitudinally split sherds.

### STONE OBJECTS

All the specimens in this category are of chipped stone and consist of:

*Projectile points.*—One small, complete triangular point with convex sides and irregularly straight base, in gray quartzite, fully retouched on one face and marginally retouched on the reverse face; one small, fragmentary side-notched point with straight converging sides, in dark brown chalcedony, fully retouched on both faces; and the distal sections of two points in gray quartzite, fully retouched on both faces.

*Modified flakes.*—Two fragmentary flakes of gray and brown chalcedony bear retouch scars along parts of one or more edges.

### REFUSE MATERIALS

Small samples of chipping debris and of faunal and vegetal remains were recovered from the Joos site.

*Chipping debris.*—One small core and four small flakes of quartzite and nine small flakes of chalcedony are present.

*Faunal remains.*—This material consists of a scapula of bison, *Bison bison*, and five unidentifiable animal-bone fragments; one unidentified bird humerus and vertebra; and nine shell fragments, one of which was identified as *Lampsilis siliquoidea* (Barnes).

*Vegetal remains.*—The material includes two lots of decayed, charred wood and one lot of charcoal, not as yet identified, and one charred pit of *Prunus americana*.

## UNEXCAVATED OCCUPATION SITES

Eight detrital areas along the west side of the James River which had been exposed and disturbed by bulldozers to varying degrees, incidentally to clearing the reservoir area of timber and brush, were located, recorded by site designation, and briefly examined by members of the Missouri Basin Project field party between June 18 and June 21, 1954, during the last season of archeological work in the Jamestown Reservoir area. All these pottery-bearing sites are now obliterated by impounded water. Descriptions of the sites and of the materials taken from them follow. (The location and estimated extent of each of the eight sites are shown in fig. 26.)

*Site 32SN34* occurred along the edge of the low terrace, in NE¼ and NW¼NE¼, sec. 23, T. 141 N., R. 64 W., approximately 4½ miles in an airline northwest of the Joos site. It consisted of a deposit of debris lying from 0.4 to 0.8 foot below the surface, in fine light-brown alluvial silt, and covering an area about 1,200 feet long east–west by 150 feet wide north–south. The specimens obtained from this site include:

1 rim-and-lip sherd of Buchanan Punctated type;
1 rim-and-lip sherd of Pingree Cord Impressed type, with the cord having an S-twist;
2 shoulder sherds of Owego Tool Impressed type (?);
1 near-rim sherd with closely spaced horizontal cord impressions, with the cord having an S-twist;
8 scored near-rim sherds;
12 simple stamped body sherds;
10 smoothed body sherds;
2 small bilaterally side-notched projectile points with straight base, lacking the tip, in jasper;

1 small stemmed projectile point with barbed shoulders (?), lacking the base and tip, in brown chalcedony;
1 medium-size, complete stemmed projectile point with barbed shoulders and convex, smoothed base, in brown chalcedony—probably an "heirloom" piece;
1 small, complete end scraper fully retouched on the convex face, in brown chalcedony, and the proximal fragment of a small end scraper marginally retouched on the upper face, in tan-brown chalcedony;
1 medial fragment of a flake scraper retouched along one side, in brown chalcedony;
4 retouched flakes of quartzite and silicified wood;
1 small subcircular and 1 medium-size subrectangular hand-hammer, deeply pitted here and there by battering;
1 fragment of a tubular pipe (?) of greenish gray steatite, measuring 33 x 18 x 3.25 mm., highly polished on the convex surface, which bears several lengthwise incisions or scratches that may be fortuitous;
2 small cores and 14 small to minute waste flakes of chalcedony, chert and quartzite;
13 animal-bone fragments and one shell fragment, all unidentifiable save for one fragmentary toe bone of bison, *Bison bison.*

*Site 32SN35* lay at the edge of the low terrace, in NE¼NE¼, sec. 23, T. 141 N., R. 64 W., about 400 feet southeast of site 32SN34. The site was marked by a seemingly thin deposit of occupational refuse extending over an area about 300 feet in length northeast–southwest, and about 200 feet in width northwest–southeast. The specimens, which occurred in a layer of light-brown alluvial silt underlain by till, consist of:

2 rim-and-lip sherds of Buchanan Undecorated type;
2 rim-and-lip sherds of Pingree Cord Impressed type, with the cord having an S-twist;
2 rim-and-lip sherds of Lisbon Tool Impressed type;
4 broad trailed shoulder sherds, three of which are shell tempered;
3 scored shoulder or near-rim sherds;
4 simple stamped body sherds;
8 cord-marked body sherds;
12 smoothed body sherds, 1 of which is shell tempered;
1 small utilized flake of brown chalcedony;
5 small waste flakes of chalcedony, chert and crystal quartz; and some unidentifiable bone fragments (discarded in the field).

*Site 32SN36* was situated at the edge of the low terrace, just south of a gully entering the James River on the west, in NE¼SW¼, sec. 31, T. 141 N., R. 63 W., approximately 3 miles southeast of site 32SN35 and ¼ mile northwest of the Hintz site. Consisting of an apparently thin deposit of detritus in sod and extending over an area about 225 feet in length east–west and 125 feet in width north–south, the site yielded the following specimens:

1 rim-and-lip sherd of Melville Cord Impressed type, with the cord having an S-twist;
1 smoothed near-rim sherd;

1 trailed or incised sherd;
1 simple stamped body sherd;
7 smoothed body sherds;
1 small utilized flake of quartzite;
3 unidentifiable scraps of bone (discarded in the field).

*Site 32SN37* occurred at the edge of the low terrace, in NE¼SW¼, sec. 31, T. 141 N., R. 63 W., on the north side of a gully, opposite site 32SN36. The site was a seemingly thin deposit of occupational refuse in alluvial silt below a layer of sod. Materials collected from the area consist of:

1 check stamped shoulder sherd (of Owego Tool Impressed type?);
1 cord impressed shoulder sherd, with the cord having a Z-twist;
5 simple stamped body sherds;
3 cord-marked body sherds;
10 smoothed body sherds;
the distal fragment of a small projectile point (?) in brown chalcedony;
1 small projectile point "reject", subtriangular in outline, in gray chert;
1 small, fragmentary engraver-knife, in flint;
2 small modified flakes and 5 minute unworked flakes of chalcedony;
1 toe bone of bison, *Bison bison*, and 1 unidentifiable bone fragment and 1 unidentifiable tooth fragment (discarded in the field).

*Site 32SN38* lay at the edge of the low terrace, in NW¼SW¼, sec. 30, T. 141 N., R. 63 W., about 9/10 mile north-northwest of site 32SN37. The thin layer of occupational debris occurred in sod and covered an area approximately 275 feet in length northwest–southeast by 100 feet in width northeast–southwest. The sample of collected material consists solely of pottery fragments, including:

1 rim-and-lip sherd of Buchanan Undecorated type;
1 rim-and-lip sherd of Melville Cord Impressed type, the cord having an S-twist;
1 shoulder sherd bearing closely spaced cord impressed lines, the cord having a Z-twist;
11 simple stamped body sherds;
3 smoothed body sherds;
1 longitudinally split body sherd.

*Site 32SN39* occurred at the edge of a terrace cut by a headward-eroding gully, in SW¼NE¼, sec. 25, T. 141 N., R. 64 W., a little over ½ mile northwest of site 39SN38. The thin detrital layer, in sod, extended over an area approximately 150 feet east–west by 180 feet northwest–southeast. The collected specimens consist of:

2 simple stamped body sherds;
4 smoothed body sherds;
1 small utilized flake of quartzite;
1 small modified flake of quartzite;
1 small and 1 minute unworked flake of chalcedony;
1 toe bone of bison, *Bison bison*.

*Site 32SN40* was situated at the edge of a terrace, in SW¼NE¼, sec. 25, T. 141 N., R. 64 W., about 850 feet northwest of site 39SN39 The thin lens of occupational detritus occurred in sod, in an area about 160 feet northwest–southeast by 60 feet northeast–southwest. The only specimens recovered include:

1 smoothed shoulder sherd;
2 smoothed body sherds;
1 small modified flake of chalcedony.

*Site 32SN41* lay on a terrace, in the center of NW¼, sec. 24, T. 141 N., R. 64 W., a little over a mile north-northwest of site 32SN40. The thin deposit of occupational debris occurred in alluvial silt, in an area about 190 feet east–west by 100 feet north–south. The following specimens were collected:

1 wrapped-stick impressed near-rim sherd;
1 scored near-rim sherd;
3 simple stamped body sherds;
1 cord-marked body sherd;
1 smoothed body sherd;
the distal fragment of a projectile point or knife in tan-brown chalcedony;
2 small flake scrapers in chalcedony;
2 modified flakes of chalcedony;
1 medium-size and 17 small to tiny waste flakes of chalcedony, chert and quartzite.

The samples of material obtained from the eight unexcavated sites described above indicate with more or less certainty, particularly as regards the pottery fragments present on them, that they participated in the same cultural traditions as did the better-known Hintz and Joos sites. The apparently small size of most of these sites; the absence of discernible settlement features and the thinness of accumulated refuse in them; and the paltry samples of specimens taken from them (which in some cases may be considerably short of representative samples of their recoverable contents)—all seem to imply that these sites were transitory camps of small groups that were culturally related to and contemporaneous with the larger population aggregates which occupied the Hintz and Joos sites.

## SYNTHESIS: THE STUTSMAN FOCUS

The settlement features and burials unearthed at the Hintz and Joos sites and the artifacts and refuse materials recovered from the surface and excavations at those sites, plus the artifacts and detritus obtained from the bulldozed exposures at eight other sites in the Jamestown Reservoir area, appear to represent a single aboriginal culture complex which I am calling the Stutsman Focus. This focus is characterized by the following traits:

(1) Unfortified, semipermanent townsites (Hintz site) and transitory campsites on flood-free alluvial terraces along the upper James River; and eagle-trap sites (Joos site) on the crest of valley ridges in this area.

(2) Small, circular, earth-covered (?) lodges, randomly placed and rather closely set, with four central supporting posts and two rings of peripheral posts, a long covered entryway or vestibule opening on the east or southeast, one or more fireplaces, and small subfloor cache pits.

(3) A small, circular sweat lodge; a bower; a trash dump; a drying rack (?); unprepared lightly fired and heavily fired hearths and prepared hearths, a tool cache and boulder-anvils, in the open; and eagle-trap pits.

(4) Secondary burials in eagle-trap pits.

(5) Artifacts of five material categories:

(a) Metal: Metal knife blades of iron and brass, probably fabricated from metal obtained by direct or indirect White trade.

(b) Pottery: Fine sand- or grit-tempered, unslipped, probably lump modeled, buff to dark-gray globular jars of apparently small size, for culinary purposes, with rounded, flattened, beveled, everted, pointed, or interiorly or exteriorly extruded lips, and incurved, flared (unthickened, or "braced" or "wedged-shaped"), collared, or S-shaped rims; undecorated, or decorated with rectilinear or rarely curvilinear dentate stamped, incised-trailed, cord impressed, tool impressed, punctated, wrapped-stick impressed, check stamped, scored, or painted designs on the lip, exterior and/or interior rim surfaces, and shoulder area. Bodies are simple stamped, cord-marked, or smoothed. Strap handles and lugs occur infrequently. Five locally identifiable wares comprising 13 types are recognized. In addition, examples of nine named and described (rim) types found at other sites in the Northern Plains are present in the Hintz component. Two roughly trimmed sherds, subcircular and subrectangular in outline, may have been gaming pieces.

(c) Stone: Chipped stone triangular and bilaterally side-notched arrowpoints, small knives and flake scrapers, small subtriangular to subrectangular end scrapers retouched over the entire convex surface, along the edges, or on the working end only, T- and sickle-shaped drills, arrowshaft-cutters, and use-retouched flakes; core choppers or scrapers; handhammers, three-quarter-grooved and full-grooved hammers; large and small anvils; and a cuboid pipe of limestone decorated with two incised lines encircling the bowl, and pipe fragments of steatite and catlinite.

(d) Bone: Splinter awls, flakers, quill flatteners or pottery tools, a shaft wrench, and paintbrushes of cancellous bone; and scapula hoes with intact head and centrally perforated body.

(e) Shell: Worked pieces (pendants?), three of which are of *Busycon contrarium* from the Gulf of Mexico.

(6) Four groups of refuse materials:

(a) Chipping debris: Cores and waste flakes of chalcedony, chert, jasper, quartzite, etc.

(b) Faunal remains: Predominantly modern bison; also pronghorn or deer, badger, gray fox, dog or coyote, skunk, beaver, jackrabbit, pocket gopher, ground squirrel; unidentified bird; and fresh-water mussels, *Anodonta grandis plana* Lea, *Lampsilis siliquoidea* (Barnes), and *Lasmigona complanata* (Barnes).

(c) Vegetal remains: Charred pits of wild plum, *Prunus americana*, and unidentified decayed wood and charcoal. No remains of maize, beans, sunflowers or cucurbits were found, but the presence of hoes and of smoking pipes indicates that horticulture involving the above plants, plus tobacco, was undoubtedly practiced.

The material inventories of the components of the Stutsman Focus imply seminomadic communities whose economy was based on a combination of horticulture, hunting (including eagle trapping), and collecting.

## ASSESSMENT: THE CULTURAL AFFINITIES AND TEMPORAL PLACEMENT OF THE STUTSMAN FOCUS

The ceramic complex of the Stutsman Focus seems to be intimately related to that of the Painted Woods Focus, represented or probably represented at 17 sites or components of sites on both sides of the Missouri River, from Mannhaven southward to just above Harmon in central North Dakota, and at the Schultz site on the lower Sheyenne River in southeastern North Dakota. The Painted Woods Focus has been tentatively ascribed to the Hidatsa (Bowers, MS). One or more groups of this seminomadic Northern Plains tribe may have been responsible for the Stutsman Focus.

The presence of a few artifacts of trade metal and of examples of certain presumably late pottery types (particularly the Ransom, Stanley, and Talking Crow types identified in foregoing pages) in the inventory of the Hintz component suggests that the Stutsman Focus may be placed in the early Historic Period (Strong, 1940, pp. 365–366, and table 1), and may be accorded a date of A.D. 1750, or 1770, to 1800.

## REFERENCES CITED

Bowers, Alfred William.

1950. Mandan social and ceremonial organization. Univ. Chicago Publ. Anthrop., Social Anthrop. Ser.

——— A history of the Mandan and Hidatsa. MS., Ph. D. dissertation, Univ. Chicago, 1948.

Leechman, Douglas.

1951. Bone grease. Amer. Antiquity, vol. 16, No. 4, pp. 355–356.

Lehmer, Donald J.

1951. Pottery types from the Dodd site, Oahe Reservoir, South Dakota. Plains Archeol. Conference News Letter, vol. 4, No. 2.

1954. Archeological investigations in the Oahe dam area, South Dakota, 1950–51. Bur. Amer. Ethnol. Bull. 158, Riv. Bas. Surv. Pap., No. 7.

Smith, Carlyle S.

1951. Pottery types from the Talking Crow site, Fort Randall Reservoir, South Dakota. Plains Archeol. Conference News Letter, vol. 4, No. 3.

Strong, William Duncan.

1940. From history to prehistory in the northern Great Plains. Smithsonian Misc. Coll., vol. 100, pp. 353–394.

Wheeler, Richard P.

1956. "Quill flatteners" or pottery modeling tools? Plains Anthrop. No. 6, pp. 17–20.

Will, George F.

1924. Archaeology of the Missouri Valley. Amer. Mus. Nat. Hist., Anthrop. Pap., vol. 22, pt. 6, pp. 285–344.

Wilson, Gilbert Livingstone.

1928. Hidatsa eagle trapping. Amer. Mus. Nat. Hist., Anthrop. Pap., vol. 33 pt. 4, pp. 99–245.

Wood, W. Raymond.

1955. Pottery types from the Biesterfeldt site, North Dakota. Plains Anthrop., No. 3, pp. 3–12.

# APPENDIX

## LISBON FLARED RIM AND OWEGO FLARED RIM WARES

By W. Raymond Wood

The ceramics described herein were found at the Schultz site, located on the Sheyenne River, in SW¼SE¼, sec. 10, T. 135 N., R. 53 E., Owego Township, Ransom County, N. Dak., by Thad. C. Hecker while he was associated with the State Historical Society of North Dakota. The site lies about 18 miles in an airline east-northeast of the town of Lisbon.

Hecker's field notes state that the sherds were taken from "the lower levels of the . . . village ash pits." This may indicate either that they were found near the base of some features at the site, or that they were recovered from the lower of several levels recognized at the site. The overwhelming majority of sherds in the sample from the Schultz site are cord-marked. Unfortunately, there are no records of the association of the pottery with other artifact material from the site.

Permission to publish the following ware and type descriptions based upon the Schultz collection has kindly been granted to me by Russell Reid, superintendent of the State Historical Society of North Dakota, at Bismarck.

### LISBON FLARED RIM WARE

(Ware sample: 82 rim sherds, 213 body sherds, and 2 partially restored vessels.)

PASTE:

*Temper:* Predominantly fine sand or grit. Some sherds contain particles of a flaky, metallic gray substance.

*Texture:* Sherds tend to break in straight lines, but some specimens crumble easily at the break. Some lamination results in horizontal cleavage.

*Color:* Light buff to dark gray, with most examples medium gray.

*Hardness:* 3.5 (celestite).

TECHNIQUE OF MANUFACTURE: Probably lump modeled, then thinned with paddle and anvil.

SURFACE FINISH: Most of the sherds are vertically cord-marked with a coarse, fibrous cord while the clay was still pliable. Some check stamping is also present. Many sherds were partially smoothed before the clay was dry, and some of the impressions are partly obliterated. Probably all of the specimens were first cord-marked (or check stamped) and then smoothed.

FORM:

*Lip:* Flat, with occasional extrusion from decoration.

*Rim:* Straight and vertical to flaring. Height ranges from 18 to 65 mm., and averages 35 mm.; thickness varies from 4 to 8 mm., and averages 6 mm.

*Neck:* Somewhat constricted; rim joins shoulder in a definite yet smoothed curve.

*Shoulder:* Many sherds have angular shoulders, but one of the partially restored vessels has a rounded shoulder.

*Body:* One partially restored vessel has a globular body with a wide mouth, and the remaining sherds appear to be from similar vessels. Body sherds vary from 3 to 8 mm. in thickness, and neck and shoulder sherds are generally 7 to 8 mm. in thickness. The two partially restored vessels yield these measurements: interior diameter of the orifice, 20.4 and 24.0 cm.; exterior diameter of the necks, 20.0 and 23.8 cm.

*Base-Bottom:* Not determinable.

*Appendages:* No handles or lugs present.

*Decorative treatment:* Includes finger impression, punctation, indentation, and incision.

*Component types:*

Lisbon Tool Impressed.
Lisbon Horizontally Incised.
Lisbon Undecorated.

### *Lisbon Tool Impressed*

(Pl. 35, *a-c*)

(Type sample: 35 rim sherds, representing 29 vessels.)

SURFACE FINISH: The specimens are vertically cord-marked with a coarse, fibrous cord, or are rarely check stamped. Observed markings or stamps extend from the lip to the shoulder. Four sherds exhibit cord markings with **S** twists; three have cord markings with **Z** twists. On some specimens the cord markings or stamps are somewhat smoothed over.

DECORATIVE TREATMENT: Indentation, punctation, and finger impression on the lip. The following occurrences were noted: Diagonal indentations, six specimens; transverse indentations, one example; vertical punctations, six examples; diagonal impressions, seven specimens; finger impressions, five examples. The last-mentioned exhibit alternating indentations on the exterior and interior, made by pressing the moist clay with two offset fingers, one inside and the other outside the vessel. The resulting impression gives a "pie crust" effect.

### *Lisbon Horizontally Incised*

(Pl. 35, *d*)

(Type sample: 2 rim sherds, representing 2 vessels.)

SURFACE FINISH: Lips and rims are smoothed, but irregularities in the surface suggest that smoothing was done over cord-marked surfaces. The upper part of the shoulder area of one sherd bears vertical cord marks.

DECORATIVE TREATMENT: Indentation and incision. The lip of one sherd was diagonally indented with a dowel of large diameter, the other was diagonally indented with a small dowel. Four to eight incised lines, 1 to 2 mm. in width, encircle the exterior rim.

### *Lisbon Undecorated*

(Type sample: 38 rim sherds, representing 30 vessels, and 1 partially restored vessel.)

Surface Finish: Lips and rims are smoothed horizontally. The shoulder area, when present, is also smoothed. Irregularities in the exterior surfaces indicate that cord marking preceded smoothing. Horizontal striations often occur on the sherds as the result of smoothing.

Decorative Treatment: When present, consists of indentation, punctation, finger impression, and incision on the lip only. The following occurrences were noted: impression with a dowel applied to the exterior at a 45° angle, five specimens; impression with a dowel applied to the interior at a 45° angle, two examples; diagonal impressions with a dowel, nine examples; transverse impressions with a large dowel, four specimens; vertical punctations, four specimens; finger impressions, five examples; horizontal incision, one specimen; incised X's, one example; no decoration, two specimens.

## OWEGO FLARED RIM WARE

### *Owego Tool Impressed*

(Pl. 36, *a*, *b*)

(Type sample: 4 rim sherds, representing 4 vessels, and 1 partially restored vessel.)

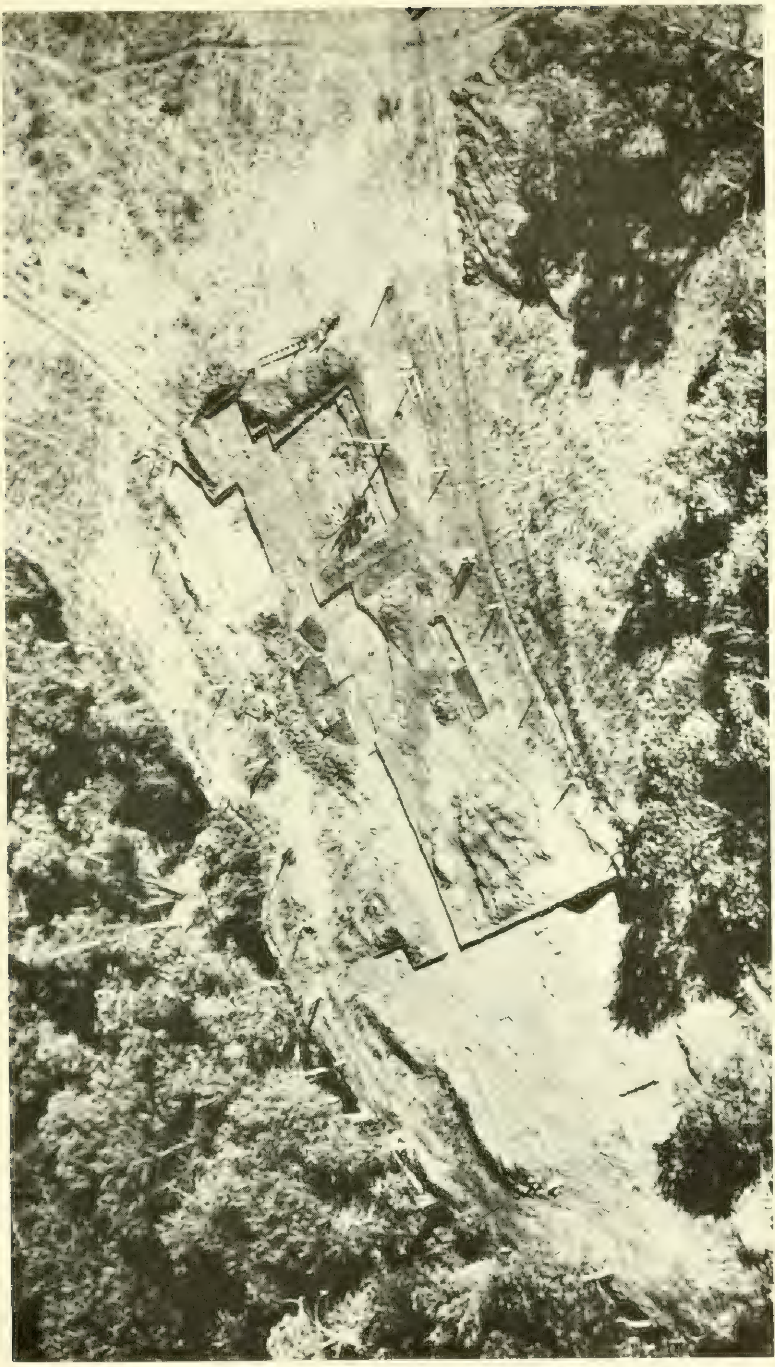
Paste: Comparable to that of Lisbon Flared Rim ware.

Technique of Manufacture: Comparable to that of Lisbon Flared Rim ware.

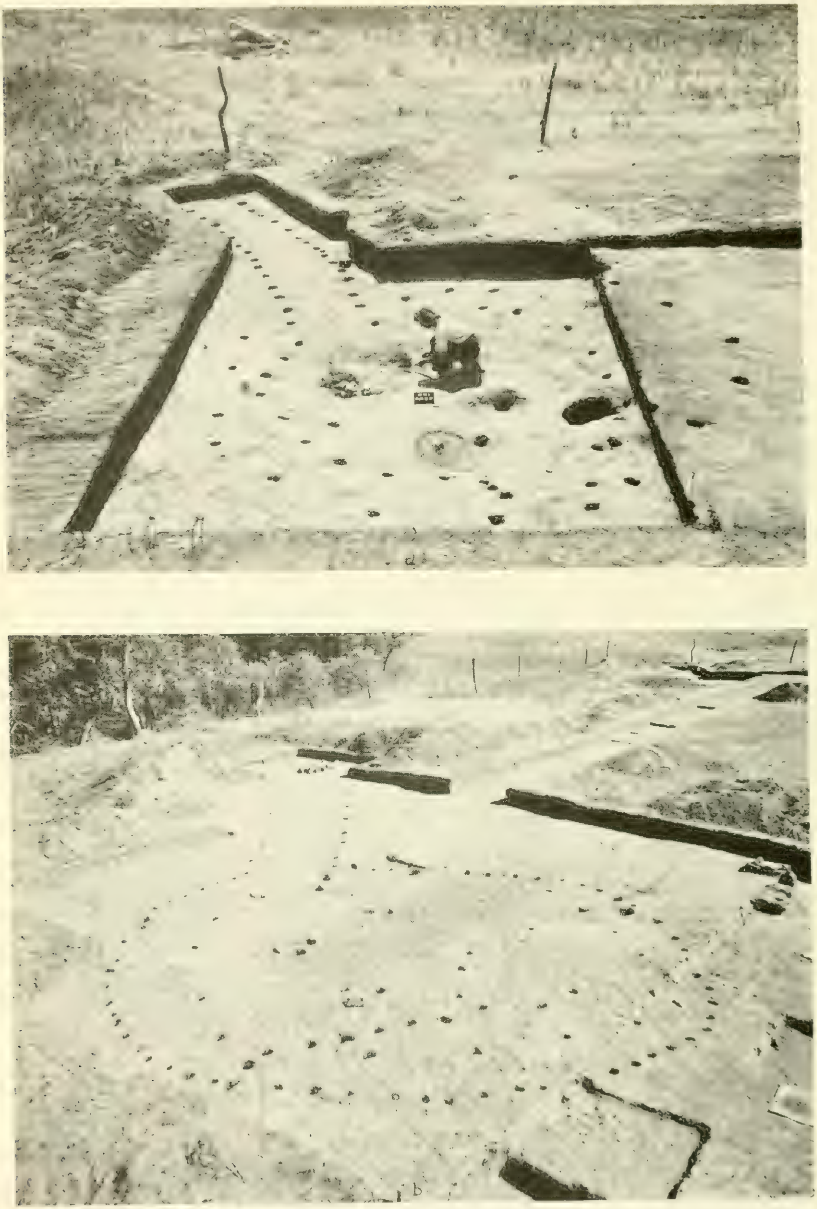
Surface Finish: Lips are smoothed and rims are impressed with randomly applied check stamps. The stamps make a grid impression, and individual stamps are about 2.0 mm. square. The impressions are partially smoothed. The shoulder area of the partially restored vessel bears nearly obliterated check stamps under incised and punctated designs, and check stamps below the shoulder are also smoothed over (pl. 36, *b*).

Form: Comparable to that of Lisbon Flared Rim ware.

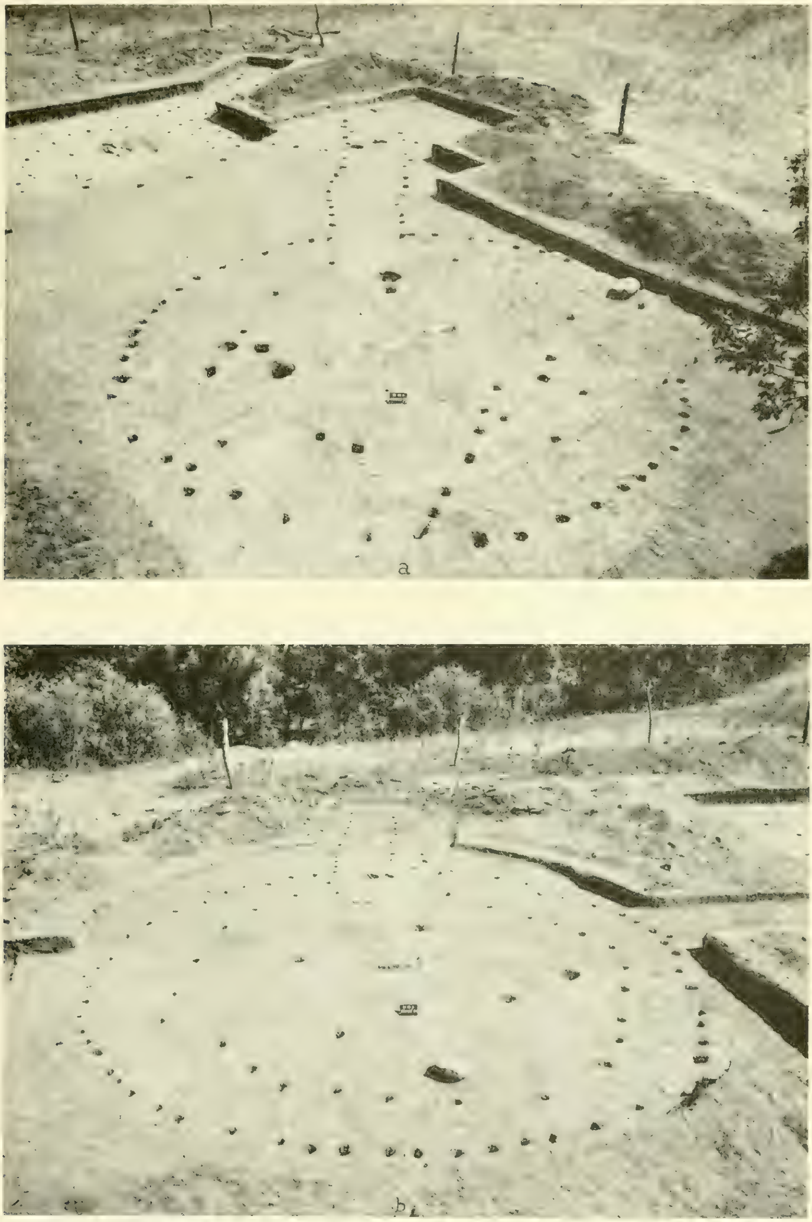
Decorative Treatment: Indentation, punctation, and incision. In two cases the lips bear transverse indentations made with a large dowel. Three specimens were indented by vertical pressure with the finger. The partially restored vessel bears closely spaced indentations made with a dowel applied at a 45° angle to the lip exterior. The shoulder area of this specimen is decorated with alternating bands of incisions and punctates, the latter having been applied vertically, at a 45° angle.



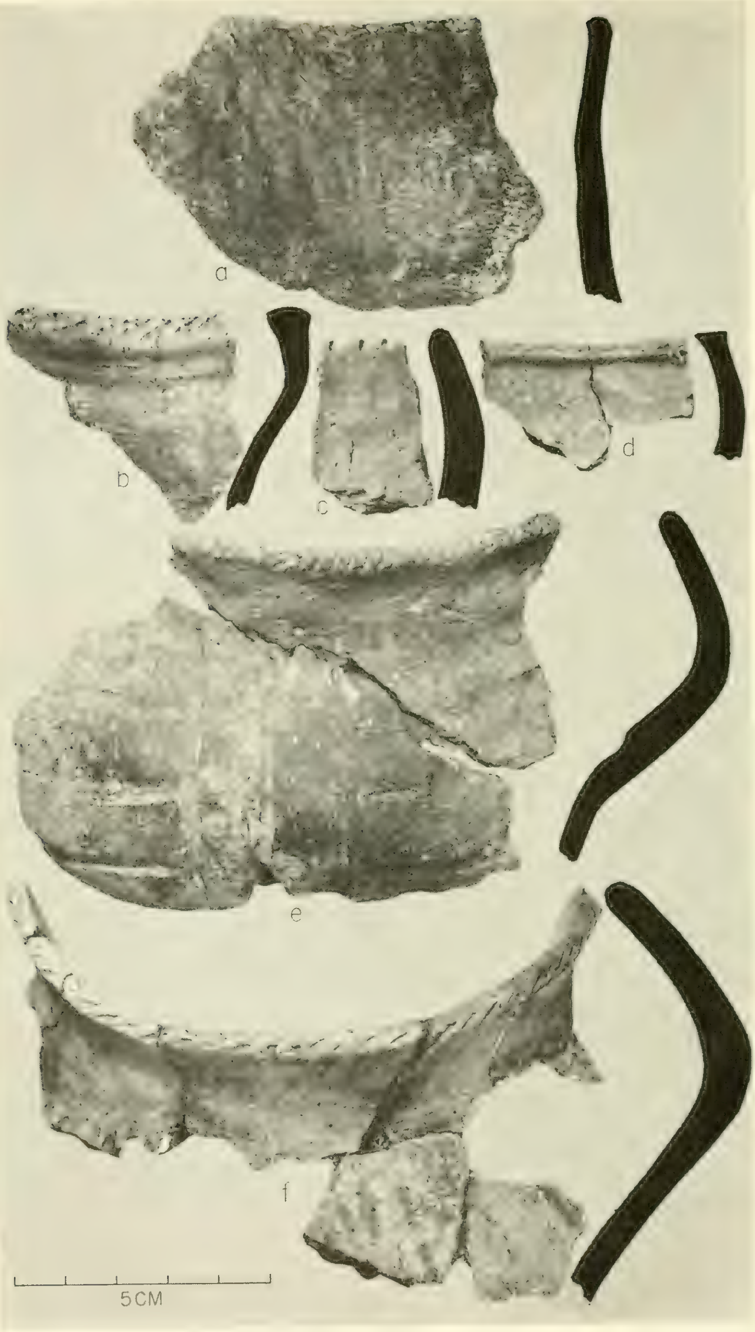
Air view of the north portion of the Hintz site under excavation in 1952, looking east-southeast.



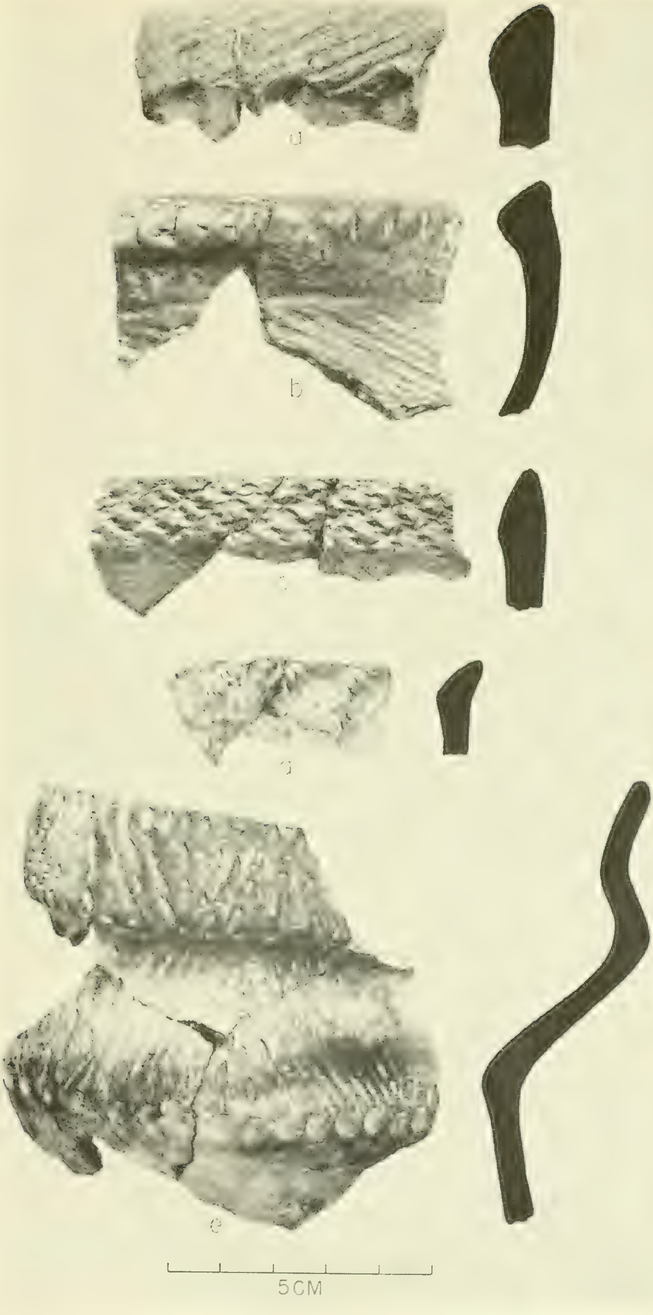
*a*, House 1 (F17), looking south. *b*, House 2 (F25), looking southeast, Hintz site.



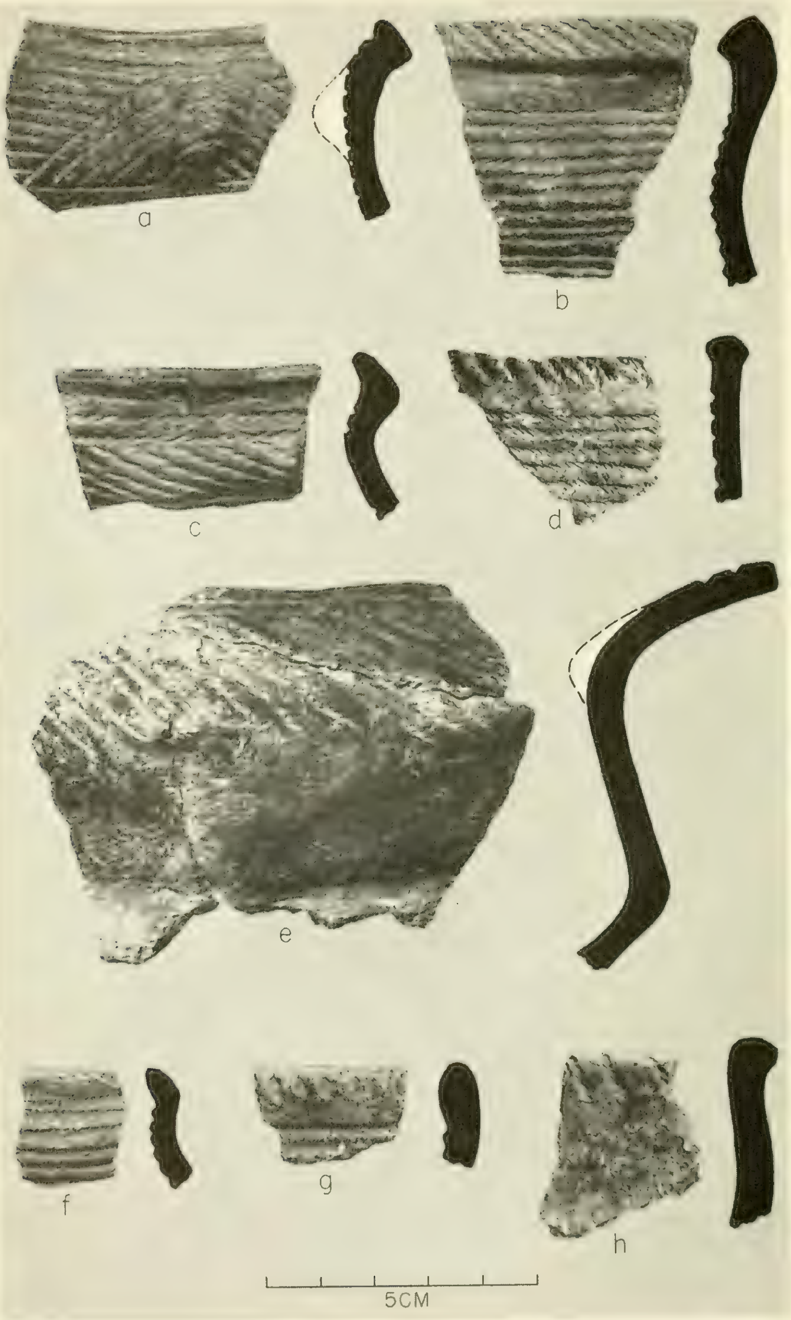
*a*, House 3 (F27), looking southeast. *b*, House 4 (F34), looking east, Hintz site.



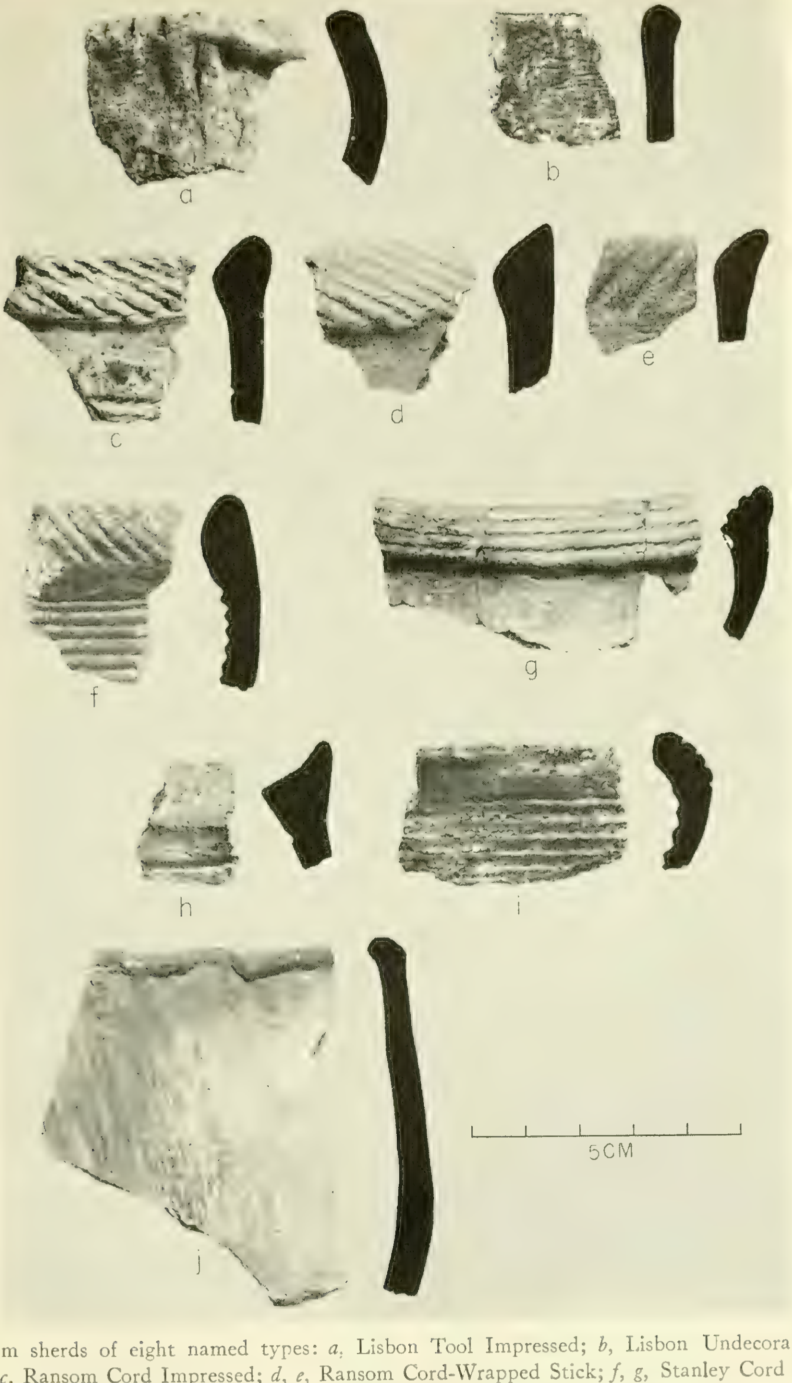
Rim sherds of five named types: *a*, Parkhurst Dentate Stamped; *b*, Buchanan Cord Impressed; *c*, Buchanan Tool Impressed; *d*, Buchanan Punctated; *e*, *f*, Buchanan Incised-Trailed, Hintz site.



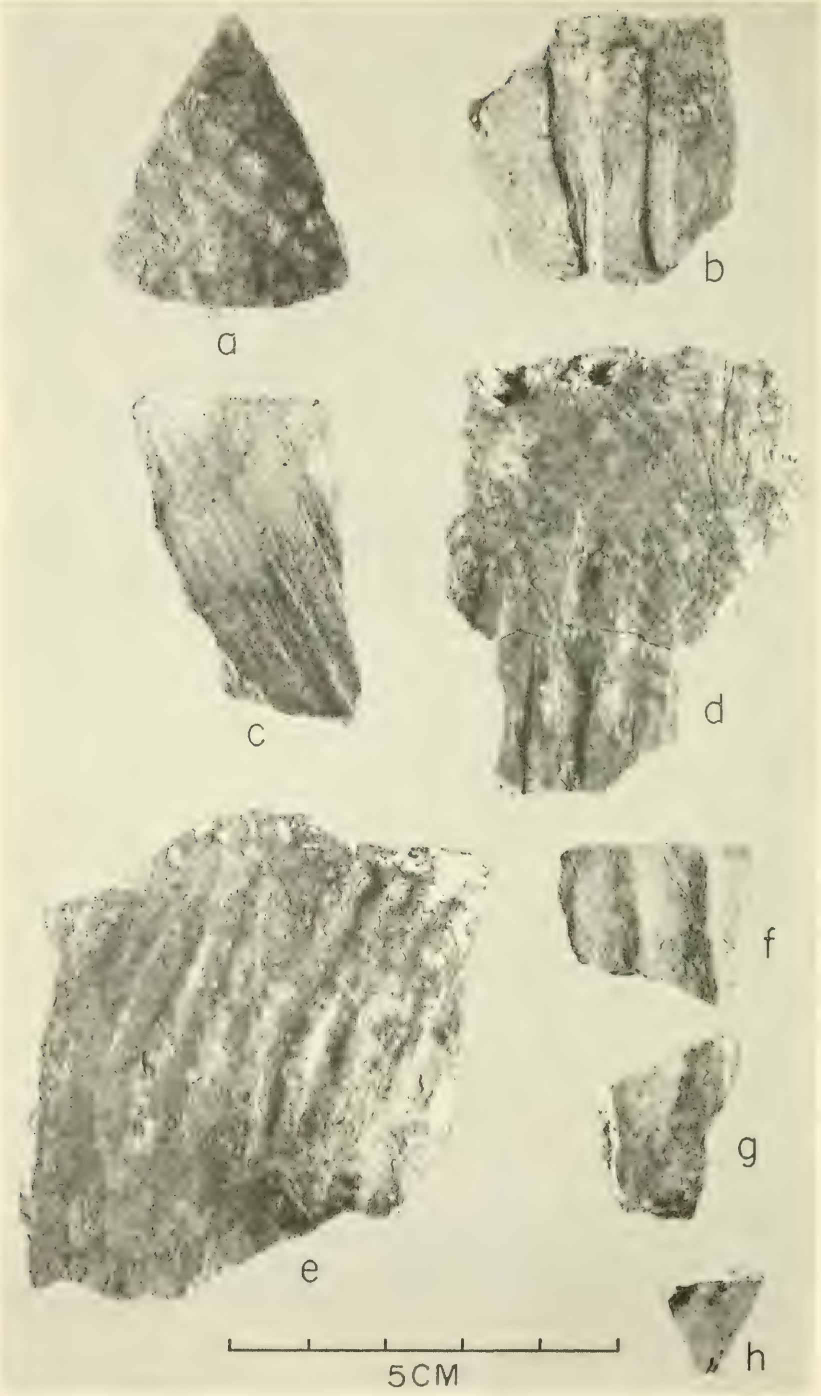
Rim sherds of three named types: *a–c*, Pingree Cord Impressed; *d*, Pingree Dentate Stamped; *e*, Edmunds Dentate Stamped, Hintz site.



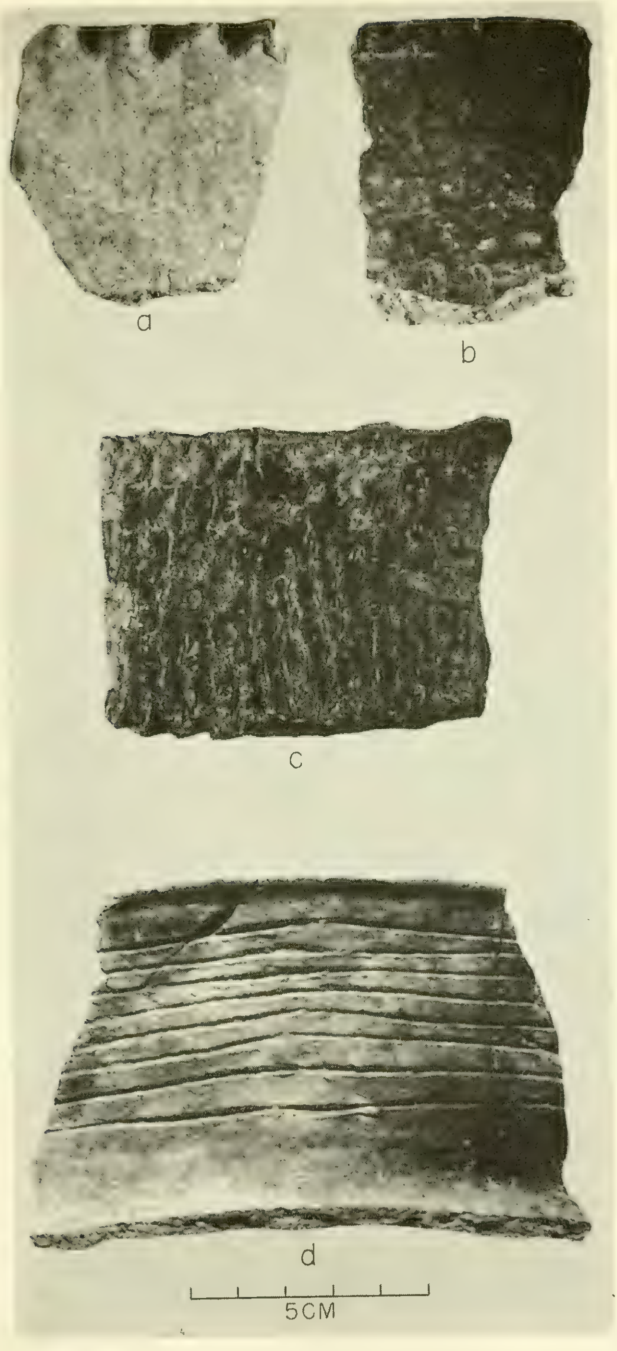
Rim sherds of three named types: *a–e*, Melville Cord Impressed; *f*, *g*, Melville Wrapped-Stick Impressed; *h*, Melville Scored, Hintz site.



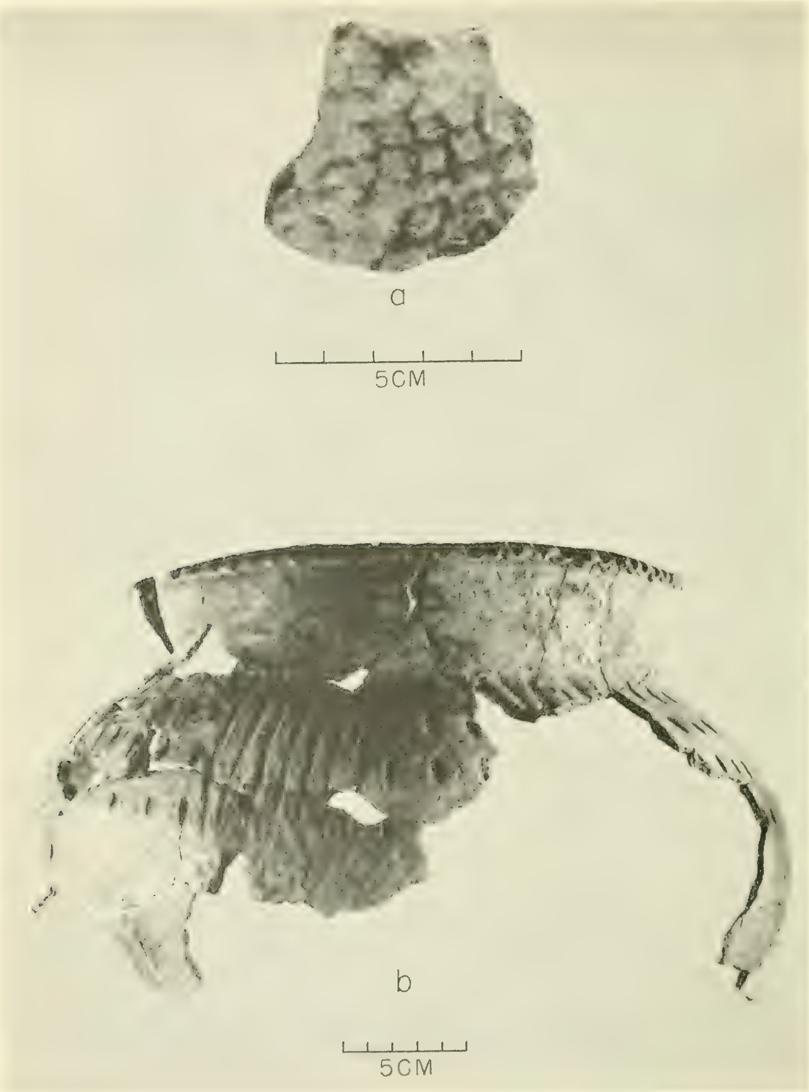
Rim sherds of eight named types: *a,* Lisbon Tool Impressed; *b,* Lisbon Undecorated; *c,* Ransom Cord Impressed; *d, e,* Ransom Cord-Wrapped Stick; *f, g,* Stanley Cord Impressed; *h,* Stanley Wavy Rim (?); *i,* Stanley Plain; *j,* Talking Crow Indented, Hintz site.



Shoulder and body sherds showing various surface finish techniques: *a*, check stamped (of Owego Tool Impressed type?); *b*, trailed; *c*, scored; *d*, cord-marked; *e*, *f*, simple stamped; *g*, *h*, painted, Hintz site.



*a–c*, Rim sherds of Lisbon Tool Impressed type; *d*, Lisbon Horizontally Incised type, Schultz site.



*a*, Rim sherd, and *b*, partially restored vessel, of Owego Tool Impressed type, Schultz site.

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Bulletin 185

## River Basin Surveys Papers, No. 31

# Archeological Manifestations in the Toole County Section of the Tiber Reservoir Basin, Montana

By CARL F. MILLER

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# ARCHEOLOGICAL MANIFESTATIONS IN THE TOOLE COUNTY SECTION OF THE TIBER RESERVOIR BASIN, MONTANA[1]

By CARL F. MILLER

## INTRODUCTION

The Tiber Dam, sometimes known as the Lower Marias Unit, had its inception some 50 years ago when William T. Cowan, State Senator from Hill County, Mont., stumped for the construction of a dam across the Marias River, the waters of the subsequent reservoir to be used for irrigation purposes. His was a far-sighted vision, one which was not fully appreciated until many years after his death.

On September 30, 1952, President Harry S. Truman, before a crowd of 10,000 people, set off a blast marking the ground-breaking for the project. The dam, located 68 miles upstream from the confluence of the Marias and the Missouri Rivers, is a rolled earth-filled structure 4,300 feet long, with a maximum height of 205 feet and a maximum width at the base of 1,282 feet. The lake to be formed will have a surface area of 22,180 acres with a maximum length of 25 miles and a maximum width of 4 miles.

A concrete spillway chute, 1,334 feet long and varying in width from 108 to 200 feet and with walls ranging from 10 to 51 feet high, is designed to pass flood waters of greater magnitude than have thus far been recorded in the area. Over the spillway is an operating bridge on which are located the hoists, motors, and controls for operating 3 radial gates, each 32 feet wide and 20 feet high, controlling the spillway discharge. There is also a highway bridge over the spillway to accommodate traffic across the dam from the connecting road system. (See map 5.)

The Lower Marias Unit is a multipurpose development with irrigation as its major function. It will bring under cultivation approximately 991 farms in sections of Hill, Liberty, and Chouteau Counties. Included in the list of crops to be irrigated will be small grains, peas, flax, potatoes, sugar beets, and alfalfa; also, there will be an increase in the acreage of pasture lands. Other functions of the dam and reservoir will include flood control, the supplying of 3,600 addi-

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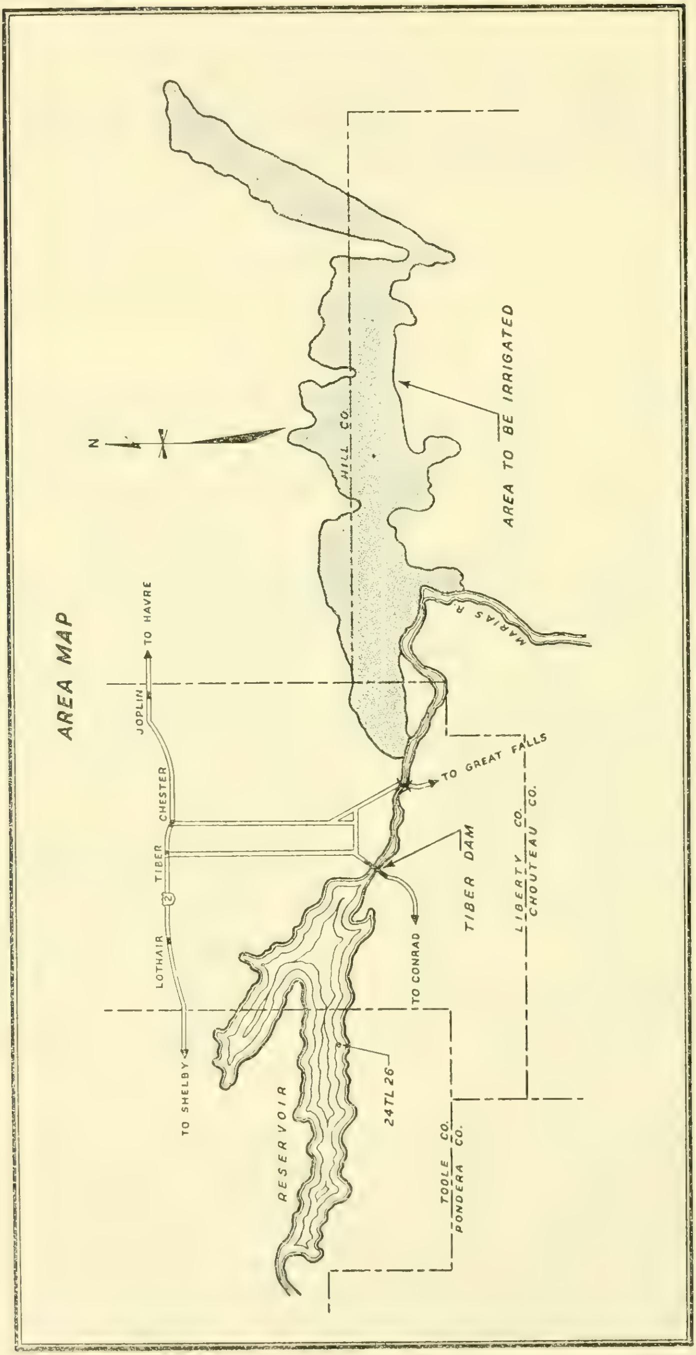
[1] Submitted February 1955.


AREA MAP
N
TO HAVRE
JOPLIN
CHESTER
TIBER
2
LOTHAIR
TO SHELBY
HILL CO.
AREA TO BE IRRIGATED
MARIAS R.
TO GREAT FALLS
TIBER DAM
LIBERTY CO.
CHOUTEAU CO.
TO CONRAD
24TL26
RESERVOIR
TOOLE CO.
PONDERA CO.

Map 5.—Tiber Reservoir area.

tional kilowatts of electricity by two power-generating plants, and the furnishing of recreation facilities for central Montana.

Connecting the Tiber Reservoir with the sections to be irrigated will be a lined canal known as the Marias Canal. This main canal will be 77 miles long with an initial capacity of 2,200 cubic feet per second at its head, which is equivalent to about 990,000 gallons per minute, or 1,425,600,000 gallons every 24 hours. Other side canals will have a combined total length of about 140 miles. Drainage and waste waters from a portion of the project will be re-collected in Lonesome Lake Reservoir, which will in turn provide additional water for a part of the project lands.

The terrain surrounding the dam and basin is made up of a flat plateau cut through by a number of small gullies. This plateau, composed of unconsolidated glacial sediments, is of varying heights and in places drops abruptly into the flood plains and river terraces of the Marias River. Wherever the Marias River meandered close to the plateau, it undermined these sediments, developing steeply cut banks.

Sporadic groves of cottonwoods and willows occur along the river flood plain, and only in a few favorable areas is agriculture practiced. The usual prairie grasses and other vegetation cover most of the area and are utilized for cattle grazing.

This area is abundantly stocked with native game animals. Deer, antelope, and occasional elk are among the larger of the animals. Pheasants, partridges, owls, hawks of many varieties, song birds, herons, rabbits, prairie dogs, field mice, coyotes, and rattlesnakes are year-round occupants. One morning a flock of Canadian geese was seen feeding on a sandbank not far from site 24TL26. From the skeletal bones present in the sites it appears that bison must have been rather numerous in the area at one time.

## ARCHEOLOGY

A former field party, consisting of Wesley L. Bliss and Jack T. Hughes, spent 10 days in September 1946 looking over the reservoir area. During this time they were able to map 18 archeological sites. Full reservoir coverage was not completed then, so an additional survey covering a period of 14 days, from August 26 through September 8, 1948, was made by another field party of four, consisting of Wesley L. Bliss, Jack T. Hughes, J. M. Shippee, and H. G. Pierce, during which they located 35 additional sites, bringing the total up to 53. Of these sites, 31 were located in Toole County and 22 in Liberty County. Not all were confined to the reservoir area; a number lay well outside of the sphere of the reservoir and so would not be affected by the construction of the dam or suffer destruction from the action of the stored waters. Of the 31 sites in Toole County, 16 of them (24TL 3, 4, 6, 7, 8, 9, 11, 15, 22, 24, 25, 26, 27, 28, 29, and 30) were within the boundaries of the reservoir area, while the remaining 15 (24TL 1, 2, 5, 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, and 23) were either adjacent to or well outside the limits of the project.

Walter D. Enger, Jr., spent from June through the middle of September 1950 testing two sections of the Galata site (24TL26). His first section, which measured 25 feet in length and 10 feet in width, was excavated to a depth of 8 feet. This was designated as Excavation Unit A. His second section, Excavation Unit B, was 30 feet south of Excavation Unit A and measured, at the completion of the testing, 30 feet long, 10 feet wide, and 8.5 feet deep. In both of these sections he found traces of two cultural levels, Cultural Horizons I and II.

Cultural Horizon I, a rather vague level, occurred at a mean depth of 4.5 feet, while Cultural Horizon II consisted of a well-defined level which occurred at a mean depth of around 8 feet from an established datum.

From Cultural Horizon I, Enger noted and recovered bison bones, stone chips and flakes, a single side-notched triangular projectile point, a number of bison tracks which were thought to have been postmolds, and a single hearth area.

From Cultural Horizon II he was able to note and recover the following: 1 bone bead; a number of potsherds; projectile points of the triangular side-notched variety; end scrapers; obsidian and flint chips and flakes; bones of bison, deer, and canine; a single bison skull with a hole in the frontal bone; and indications of red ocher.

No report of this work was made by Enger, but Cooper (1955, pp. 24–31) summarized it in his report on the activities of the Missouri Basin during 1950–1951.

In the interval between July 18 and August 17, 1955, a third survey was made by a field party consisting of Carl F. Miller, John Anderson, and Mrs. Ruth W. Miller. Their purpose was to check on the condition of the sites and to test intensively any which warranted such testing. Two additional men, Lee G. Madison and Tyler Bastian, were added to the party during the last week of the period. Anderson and Bastian were student helpers, while Madison was from the Lincoln office of the River Basin Surveys.

At that time it was found that most of the Toole County sites had been destroyed either by stream cutting or slumping, and only a few remained to be investigated. The Galata site, 24TL26, was considered by the earlier parties to be the outstanding example within the basin. When visited by the present survey, only a remnant still existed. Consequently it was decided to make intensive tests in order to salvage what little archeological material remained.

## METHODOLOGY

Our procedure was first, to walk up and down the banks of the Marias River along the edges of the site to see if any habitational or other features were evident. Wherever such were found, a section paralleling the river bank was set apart to be excavated, following natural strata, down and into the undisturbed subsoil. Each section was given a numerical designation and its position was plotted on a map of the site showing the western bank of the river (see fig. 39). The Marias River at this point runs roughly north and south. Seven sections were excavated along 605 feet of the river bank. The size of each section was determined to a certain extent by what was to be seen in the river's bank, as well as by the manifestations uncovered in the digging.

The deposits at the Galata site were composed of banded alluvial and aeolian layers varying in hardness and, in color, from a yellow through a light gray to a dark gray. They ranged from 0.2 to 1.0 foot in thickness. Some layers were more compact than others, and in a number of instances the existence of cracks was noted, indicating that the clays had been previously exposed to sun and weathering action which caused them to shrink and crack apart. These cracks were usually filled with the same color clay as that of the superimposed stratum, resulting in sufficient color differentiation to make the feature quite noticeable. Soil samples were taken to provide evidence of this difference and to furnish material for pedological and palynological studies which might give some indication as to weather conditions and to the flora present at the time each stratum was deposited (pl. 37, *a*, *b*).

Most of the cultural material was found within a single stratum 6 inches thick, which ranged in depth from a few feet to 8 feet at the deepest. This variation was the result of slope wash, alluviation, and wind action from the contiguous hills which abutted the site. In fact, the site as a whole showed very little depth of archeological deposit, suggesting only short periods of occupancy.

## THE SECTIONS

*Section 1.*—Section 1, a trench measuring 8 feet in length, slightly over 5 feet in width, and 5 feet in depth. It penetrated well into sterile subsoil. Many strata of the overall site were observed to be much narrower in this section than in those to the south.

At a depth of 1.8 feet from the present surface two potsherds (F.S. 1520, 1521), Feature 15, were found sticking out of the river bank. They were incorporated in a dark-gray stratum (0.2 foot in thickness) which in turn overlay a heavy sand stratum. Upon investigation, this stratum proved not to contain any other cultural remains, nor did

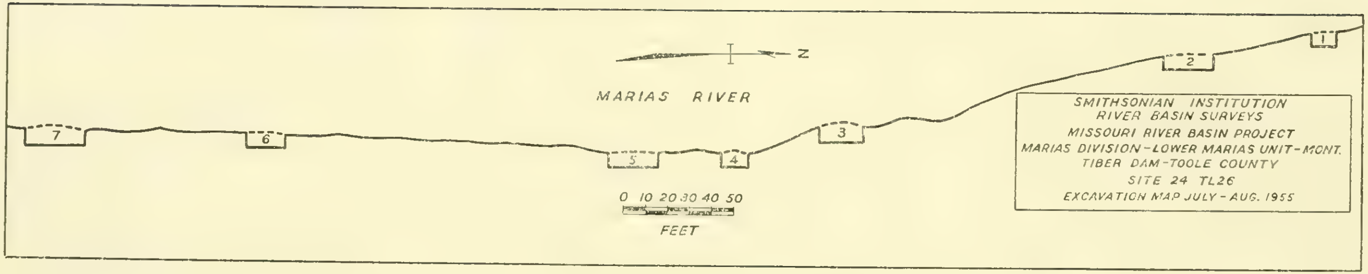

N
MARIAS RIVER
SMITHSONIAN INSTITUTION
RIVER BASIN SURVEYS
MISSOURI RIVER BASIN PROJECT
MARIAS DIVISION-LOWER MARIAS UNIT-MONT.
TIBER DAM-TOOLE COUNTY
SITE 24 TL26
EXCAVATION MAP JULY-AUG. 1955
1
2
3
4
5
6
7
0 10 20 30 40 50
FEET

Figure 39.—Profile of site 24TL26 showing location of sections.

those of the upper and lower deposits. These two sherds, after being allowed to dry thoroughly, regained much of their original hardness and showed that their exterior surfaces had been treated with a cord-wrapped paddle. Their shape indicated the basal portions of a conoidal jar. These features are diagnostic of an Early Woodland pottery. Fire clouds are much in evidence, and the paste is highly contorted, having a tendency to flake easily. It was tempered with natural sands, mostly quartzites, and fired under a reduced atmosphere, giving it a dull gray color.

Interspersed in the superstrata were numerous small fragments of *Bison* bones, none of which were burned or showed convincing evidence of intentional modification into artifacts. No other cultural features were found in this section.

*Section 2.*—Twenty-eight feet beyond and south of Section 1, a second section was excavated. It measured 22 feet in length, slightly over 5 feet in width, and 7 feet in depth (fig. 39, Section 2). Scattered through the deposits were a number of *Bison* bones as well as some stone material.

At a depth of 1.6 feet below the surface was a concentration of very small flint and obsidian chips, Feature 16. They were incorporated in the same gray clay stratum from which the sherds were obtained in Section 1. The stratum at this point had increased in thickness to 0.4 foot. After all the overlying strata were removed, without finding anything of significance, it was noted that these chips were in direct association with a number of crude scrapers which had either been intentionally discarded or lost during the period of manufacture and occupancy. None of these artifacts was diagnostic enough to indicate any particular cultural group, but since they lay within the same stratum as the sherds, we have assumed that all belonged to the same time period as the Early Woodland culture.

At a depth of 2.5 feet from the present surface, in the southeast corner of Section 2, a hearth area 2.8 feet in maximum length and 2.2 feet in maximum width was uncovered (Feature 7). It was flat across the top, of a brick-red color due to action of heat, and was covered with a thin layer of whitish wood ash in which there were bits of charcoal and sections of partially charred wood. As much of the charcoal and charred material as possible was saved for carbon-14 tests to determine, if possible, the age of the deposit. (At the present writing these tests have not been made.) We could not identify any prepared floor or living platform surrounding the hearth, and no artifacts were in the deposits above, below, or in its immediate vicinity.

At the 4.8-foot level, which was a continuation of the lowest dark gray (Woodland) stratum, part of another hearth, Feature 5, was uncovered. Prior to our excavations, a portion of this hearth had been destroyed by river action during some period of high water. The remaining section measured 4.3 feet across its longest diameter and 0.8 foot across its widest sector.

Resting upon a bed of ash and charcoal on the semilunate hearth were 42 river cobbles, which were either fire-cracked and/or broken. This assemblage of rocks and ash lay in a slight saucer-shaped depression. It was at this same level and near the hearth that a number of animal bones, mostly bison but a few deer, were collected. None of them showed any evidence of having been worked or utilized as tools.

Immediately adjacent to the animal bones were a number of small, light-gray-colored circular outlines, Feature 17, surrounded by a yellowish-colored clay which made each quite distinct. The light gray clay was derived from the stratum above. Each impression measured approximately 0.5 foot in diameter. All were carefully sectioned, both horizontally and vertically, to determine not only their origin but their purpose. It was decided that they were the imprints of ungulate hoofs of a fairly large size. Since a large number of bison bones were found on this same level, we have inferred that a number of bison, or perhaps only a single bison, wandered across the then surface during a wet spell when their hoofs sank into a lower stratum, intruding some of the clay from a higher level into a lower stratum. They were actual imprints of bison hoofs. This not only explains what Enger (n. d.) took to be random postholes, but also the circular outlines found during the present testing.

*Section 3.*—A third section located 133 feet south of Section 2, measuring 20 feet long and 5.5 feet wide, was excavated to a depth of 9.5 feet. As found in the other excavation units the deeply buried dark clay stratum dipped at a greater angle as we went south, so that at this point it lay just slightly less than 7 feet from the present surface and was 0.8 foot in thickness. To insure that no earlier and deeper deposits containing human remains existed, we carried the digging well into the sterile sandy substrata.

Each of the many strata was carefully removed, but it was only upon reaching a light yellowish layer, at a depth of 6.2 feet below the present surface, that another series of bison imprints was noted, Feature 6. These, like the former, were carefully investigated and yielded the same evidence.

The main reason for digging this particular section was the presence of portions of two burned areas, identified as Features 18 and 2, which were exposed by caving action of the banks. Both of these burned areas turned out to be the remains of small hearths or places where fires had been built directly upon the existing ground surface. No prepared surface could be identified. There was greater change in the clay directly under the center of each area, and the intensity diminished as the edges were reached. Resting directly upon these areas was the usual ash bed, together with a few small particles of burned bison bones as well as bits of charcoal. The wood ash is very reminiscent of oxidized cottonwood, both in color and composition. Beyond the mere presence of these two burned areas there were no remains of human cultural material whatsoever. (See fig. 40, Profile of Section 3.)

*Section 4.*—Section 4 was 32 feet south of Section 3. It measured 10 feet in length, 5 feet in width, and extended downward to a depth of 9 feet. In this area the lowest culture-bearing stratum had leveled off so that it lay a little over 8 feet beneath the present ground level.

At the beginning of our activities in this section a series of river cobbles was noted partially projecting out of the riverbank and extending horizontally about 8 feet from the top of the ground. Upon investigation it was found that these rocks occupied a saucer-shaped hearth area, Feature 19, together with a number of disarticulated bison bones consisting of ribs, rib fragments, sections of long bones, a few vertebrae, and what we have identified as miscellaneous deer bones. Nothing diagnostic of the culture of the builders of the hearth or the killers of the animals was found within this entire section.

*Section 5.*—Another rock-filled hearth area was noted between 34 and 42 feet south of Section 4. Another 20-foot section, 28 feet south of Section 4, was measured off, allowing enough room on either side for future expansion if necessary. Like all the other sections this one measured 5 feet in width and was taken down into sterile subsoil at a depth of over 9 feet.

No cultural evidence was found until we reached the 4.4-foot level, where there were two circular burned areas, brick-red in color, and of different sizes. Feature 12, the smaller of the burned or hearth areas was located adjacent to the south wall of the trench, while Feature 11, the larger hearth area, occupied a position more to the center of the trench. Both features showed that a moderately intense fire had been built upon the spot, leaving behind a bed of whitish-colored ash together with bits of charcoal as well as a number of fire-cracked and/or broken stones and a few bone fragments which were not affected by fire.

*Section 6.*—Another section for exploratory purposes was measured off 141 feet south of Section 5. This section measured 15 feet in length, 5 or more feet in width, and at the completion of the excavation was slightly over 9 feet in depth.

Three hearths (Features 3, 8, and 9) and a layer of scattered bones were located in this section. All the hearths showed little deviation from the type of those in other sections and only varied in actual

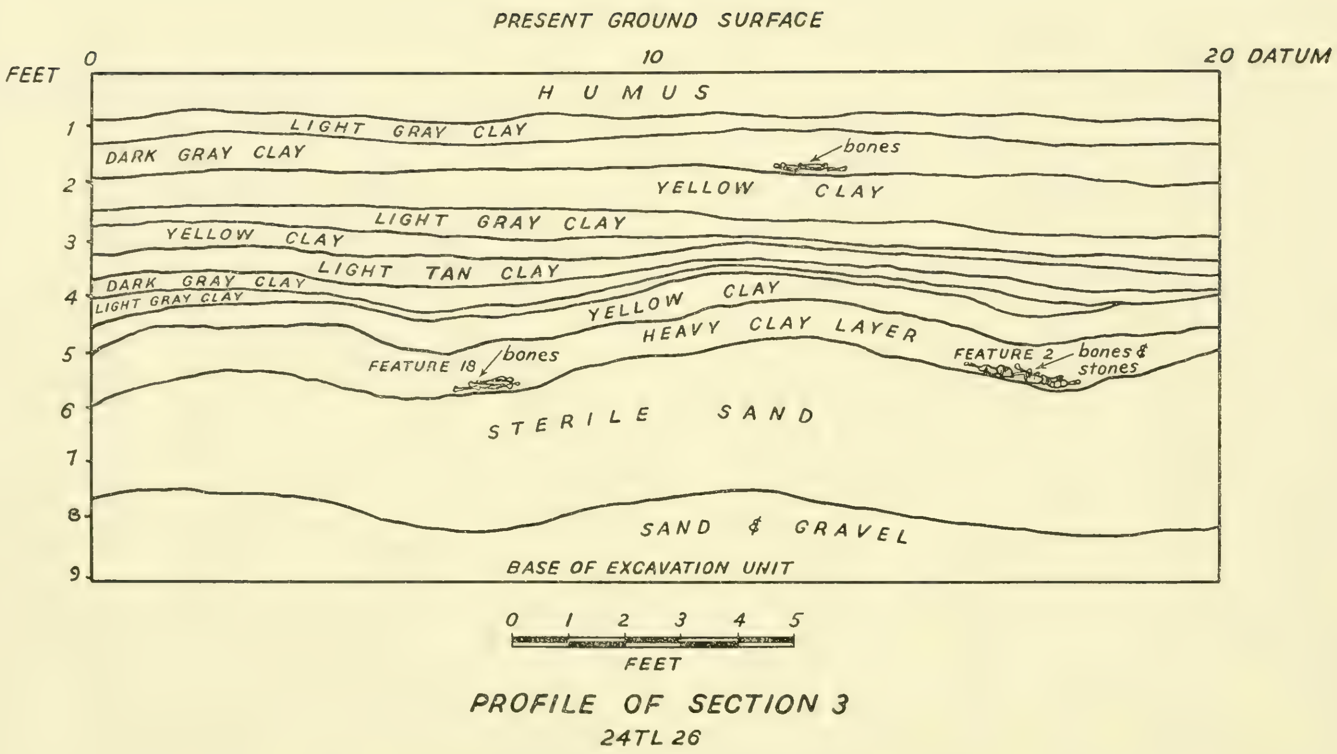

PRESENT GROUND SURFACE
FEET
0
10
20 DATUM
1
2
3
4
5
6
7
8
9
H U M U S
LIGHT GRAY CLAY
DARK GRAY CLAY
bones
YELLOW CLAY
LIGHT GRAY CLAY
YELLOW CLAY
LIGHT TAN CLAY
DARK GRAY CLAY
LIGHT GRAY CLAY
YELLOW CLAY
HEAVY CLAY LAYER
FEATURE 18
bones
FEATURE 2
bones & stones
STERILE SAND
SAND & GRAVEL
BASE OF EXCAVATION UNIT
0 1 2 3 4 5
FEET
PROFILE OF SECTION 3
24TL 26

FIGURE 40.—Profile of Section 3.

size. One of the hearths, Feature 3, was rock-filled, while the other two, Features 8 and 9, were represented by circular fire-burned outlines containing ash, flecks of charcoal, and charred and unburned bone fragments (pl. 38, *a*).

The bone layer consisted of scattered whole and broken bones, like those already noted, which rested directly upon a compact dark grayish-colored clay layer 8 feet beneath the present surface. Most of the bones were either sections of ribs, fractured or cracked long bones, whole foot bones, or an occasional lumbar vertebra, all belonging to the bison group (pl. 39, *a*). Bones of dog (*Canis familiaris*), wolf (*Canis lupus*), deer (*Odocoileus* sp.), and occasional bones of elk (*Cervus canadensis*), antelope (*Antilocapra americana*), and jackrabbit (*Lepus townsendii*)[2] were present, but never in any quantity (pl. 40, *b*).

*Section 7.*—The final section was located 68 feet south of Section 6 and was the largest section to be excavated. It measured 25 feet in length, 6 feet or over in width, and at the close of the excavation was slightly over 10 feet in depth.

Atop a dark-gray clay stratum 5.6 feet from the present surface and in the southwest corner of the section, a quarter portion of an ash-filled hearth, Feature 1, was uncovered. Nothing was found adjacent to or upon the same level as the hearth (pl. 38, *b*).

The first concentration of cultural deposit, Feature 20, occurred at the 8-foot level. This consisted of articulated and disarticulated sections of bison (*Bison bison bison*), deer, antelope, elk, and jackrabbit as well as portions of dog and wolf (pl. 40, *a;* 41, *b*). A skull of a bison cow had a hole knocked into the brain cavity for the extraction of the brains (pl. 41, *a*). In association with these bones were a number of fire-cracked and/or broken river cobbles as well as a few potsherds and chips of obsidian and chalcedony besides a few bone and stone artifacts. Most of the bones were in their natural state, although some had been broken so as to extract the marrow content.

## SPECIMENS

In the laboratory some of the sherds were combined into larger sections (pl. 42). As Cooper (1955, p. 27) and Wedel (1951, p. 131) have mentioned, these sherds are of a compact black-colored paste whose exterior surfaces varied in color from a light gray to tan to a dull black with fire clouds rather dominant. Tempering material, visible on the broken edges, appears to be mostly a natural sand with only a rare bit of crushed granite showing. Upon the exterior and interior surfaces of some of the sherds there appears a heavy carbonized layer which must have been acquired during the life of the vessel. Some of this carbonization may also have been an acquired secondary characteristic since a number of the sherds were found lying upon a burned area. Interior surfaces had been smoothed but were uneven. Wall thickness varied considerably owing to construction techniques where a paddle and anvil were used. Exterior surface treatments were fairly uniform. Although not too distinct, it appears that this surface was treated with either a sinew- or bark-wrapped or crudely made cord-wrapped paddle, as well as being smoothed (pl. 42, *a*, *e*). Positive impressions taken from the exterior surfaces of the specimens indicate that such was the case. Cooper (1955, p. 28) suggested that some of these impressions resembled those of coiled basketry, but after careful study of the positives made with modeling clay it does not appear that basketry was involved. All the sherds recovered from this section of the site were from the body portion of a single vessel. The sherds found earlier correspond in paste, color, method of manufacture, and in exterior surface treatment to those collected at this time. It now seems that there were three separate systems of treating exterior surfaces. Most sherds show that the vessel or vessels were treated with a wrapped paddle. Whether the wrapping was cord, sinew, or bark we are not sure. However, in the paddle-treated series there is not only a rim sherd but a number of body sherds which represent parts of the vessel almost down to the terminal basal portion (pl. 42, *e*, *f*). There is considerable variation in wall thickness as well as in distinctiveness of the impression. The lip of the rim sherd is intact (pl. 42, *b*). It was given a scalloped effect by pinching with the fingers, leaving the imprint of one fingernail at the base of each depression (pl. 42, *c*). The depressions are shallow, each separated by a hump of untreated lip. The pressure brought to bear during this treatment caused the lip to thicken toward both surfaces, producing an inverted wedge-shaped effect. Suspended from the rim are shallow, crudely drawn, incised, pendant triangles or zigzag lines which extend 41 mm. below the rim. The sides of these elements form equilateral triangles measuring 45 mm. in length.

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[2] Identifications were made by Dr. C. O. Handley, Jr., Division of Mammals, U.S. National Museum; other identifications were made by Dr. T. E. White, River Basin Surveys, Lincoln, Nebr.

In this same series is a sherd with an "S-shaped" cross section (pl. 42, *a*). On the exterior and superimposed over the paddled treatment is a series of ovate indentations which appear to be the result of pinching. Although the shape and size of the vessel are indeterminable, we can almost be positive that the line of pinched indentations was confined to the shoulder portion around its greatest diameter. Also, it seems probable that rising above the shoulder was a rather high neck. There is no clue to the shape of the basal portion. The walls of the vessel were thick, and there is a mottled effect on the surface resulting from firing clouds. Thus far this appears to be a unique sherd for Montana.

Another rim sherd indicates that there was also a plain ware. All surfaces were smoothed but not polished. There was some rubbing in spots, but this does not appear to be uniform. This sherd came from a wide-mouthed vessel having a flat and smoothed lip which slanted slightly inward (pl. 42, *b*). The almost imperceptible inward overhang is attributable to an increased thickness of the lip. The curvature of the sherd suggests that it was a portion of a hemispherical-shaped bowl, but we are not positive as to its shape since no other portion of the vessel was recovered.

All sherd material came from a depth ranging from 7.5 to 8.5 feet from the present surface and was not plentiful (pl. 39, *b*). Thirty-three sherds comprise the collection after two seasons work in the field.

Stone tools were made from obsidian, chalcedony, jasper, chert, and some quartzite. Usually the first four materials were reserved for projectile points, scrapers, and gouges, while the quartzite forms were usually choppers, mauls, or crude hammerstones.

Projectile points (pl. 43, *1–12*, *14*) are triangular in outline and usually have side-notches with straight bases. Only rarely is a convex-based specimen noted. One asymmetrical point (pl. 43, *13*) is unifacedly chipped and lacks the usual side notches of the typical projectile points.

Scrapers (pl. 43, *15–23*) are small, rhomboidal in outline, and are characterized by being planoconvex in cross section. Their ventral surfaces consist of the unmodified flake surface, while the dorsal surfaces have been chipped sufficiently to achieve the desired shape. Some have a dorsal keel while others have a flatness, depending upon the shape and thickness of the initial flake utilized. Most of the end scrapers have one or more abruptly retouched edges which are convex in outline, but none is sufficiently diagnostic to function as a cultural "index fossil." Specimens vary in length from 18 to 30 mm. and in width from 19 to 26 mm.

Other stone tools were represented by single specimens: A small bifacially worked blade of quartzite (pl. 43, *26*) and a flint flake with two notches chipped into two of its three edges. The latter probably functioned as a type of spokeshave.

A vast majority of the bones occurred as fragments of varying sizes. The bones are predominantly bison, with deer next, and trailed by elk, antelope, jackrabbit, wolf, and dog.

Tines from the antlers of both deer and elk were severed from the main stalk and functioned as implements. A deer's tine (pl. 44, *14*), 180 mm. long, has a battered and somewhat polished tip which suggests its use as a chipping implement. Encircling the implement 58 mm. to 77 mm. from the base are a series of transverse cuts, suggesting that an attempt was made to shorten the size of the tool. A well-weathered section of an elk's antler was recovered from Feature 5 at a depth of 3.3 feet from the present surface. All tines were cut off from this section, which probably was discarded as being of no further use.

Various objects of worked bone were recovered from the site and among these are awls, a single shaft smoother, and a number of bluntly pointed forms. Awls, while most numerous, are not plentiful. Complete forms (pl. 44, *9*, *10*, *13*, *8*) were made either from the split proximal ends of deer or antelope metapodials or from modified sections of scapula (pl. 44, *8*) containing the axillary border and adjacent portion. Another awl (pl. 44, *11*) was made from a section of a long bone which was rubbed into a shaft having a squarish cross section. Two crude awls (pl. 44, *4*, *7*) were fashioned from split sections of bison ribs in which the cancellous bone area was unmodified. One (pl. 44, *4*) was brought to a rather sharp tip, while the second (pl. 44, *7*) has a wider and blunter tip. Blunt pointed tools were made from splinters of long bones. The best examples (pl. 44, *1*, *3*, *12*) show rubbing only at or near the tips. Other blunt-pointed forms were made from split sections of bison ribs with only one working tip. The cancellous tissue in these forms was probably reduced to make the implement thinner and not as raspish to the feel (pl. 44, *5*, *6*). Fairly long sections of two bison ribs, displaying fractured tips at either end, were altered at one end into a blunt point. One shows where the cancellous tissue was reduced through use, while the other (pl. 44, *15*) does not display such a feature. A single shaft straightener (pl. 44, *2*) was made from a section of a bison's rib and at present has one complete perforation and portions of two others at either broken end. The marginal edges of the rib section bear two groups of narrow, shallow, transverse notches which are separated from each other by an unaltered and untreated section. A small, tubular bone bead, highly polished, completes the bone assemblage.

A single specimen of marine *Olivella* (*Callianax*) *biplacata* Sowerby was reported from the lower level of this site. It was imported from the Pacific coast. It had been altered by a large break through the wall away from the aperture, the edges of which were well polished, indicating that the shell had received attention subsequent to this alteration.

Choppers were made from small river-worn cobbles by means of percussion chipping. They were worked on both sides to create a cutting blade. Usually quartzites were chosen for this function. None of these tools displays much wear, probably because they could be so easily made that they were not considered worth saving from one usage to another. In most cases only the cutting edges were worked, the remainder of the stone being untouched. This provided a smooth surface that would protect the hand of the user.

## GENERAL OBSERVATIONS

One outstanding feature of the site is the noticeable absence of bison and deer caudal bones. Articulated sections of bison were plentiful, and the absence of the caudal bones is a feature noted at various kill sites attributable to Early Man as well as to later hunting groups. Apparently when an animal was skinned the tail was not removed from the hide, possibly because it was easier to sever the tail near the pelvis than to split the hide to remove it. The latter procedure probably was followed when the hide was being tanned at a more permanent camp.

Evidence from the testings showed that the occupational levels were located on the side of a gradual slope. The greatest depth of the deposits, formed by alluviation of the adjacent hills and by aeolian action, lay to the south of the site in the immediate vicinity of the steeply cut and eroded bluffs. This depth became gradually shallower in direct proportion to the distance traversed away from the bluffs, so that at a distance of around 2,000 feet the deposits were close to the present surface. At the time of the cultural deposits the site was intermittently wet and dry. This was indicated not only by the imprints of bison hoofs which had penetrated into a sublying stratum during wet intervals, but also by the presence of cracks that had formed in the clay strata as they became almost rock-hard through prolonged dry spells. The site was never permanently occupied, but only during certain seasons of the year when hunting parties went there to kill bison as the animals made use of a natural ford across the Marias River. During these temporary occupancies the people killed not only bison but also deer, white-tail jackrabbits, an occasional elk, and wolf. There the flesh was cut and hacked from the bones and prepared for transportation to the permanent villages. Bones were split to extract the marrow, and all were probably wrapped in the skins of the animals, with the attached tail portions, and taken away. Camp debris was at a minimum. A great many fires were built over the area, possibly for smoking and drying the meat.

In the beginning simple and rock-filled hearths, together with ashes, charcoal, bones, a few sherds, and some stone and bone artifacts, were deposited upon a dark-gray clay layer approximately 8 feet below the present ground level. Later a number of sterile strata accumulated above this deposit, and at a mean depth of 4.5 feet from the present surface another series of simple and rock-filled hearths were constructed. Other evidences of human occupancy were scanty and consisted mostly of fragments of animal bones and small chips of obsidian, jasper, chalcedony, and chert, indicating chipping areas. The lower level contained, in addition to fractured and whole bones, a few potsherds, triangular, side-notched projectile points, end scrapers, and a few bone tools.

To the south-southwest of the site were two deep gullies from which skulls of bisons were recovered 28 and 32 feet below the present surface. These skulls have been identified by Dr. C. Lewis Gazin, of the United States National Museum, Department of Zoology, as belonging to evolutionary stages separating *Bison occidentalis* Lucas from *Bison bison bison* Linnaeus. The same is apparently true for the bison bones from the site (pl. 45). According to exact measurements they could be either *Bison occidentalis* or *Bison bison bison.* However, these remains from the Galata site are not a distinct species, for they fall on the borderline between the two and represent an evolutionary trend making placement in time as either late Pleistocene or sub-Recent.

## CONCLUSIONS

The Galata site, 24TL26, in the Tiber Reservoir basin on the Marias River, Toole County, Mont., was never occupied for any great length of time, but rather served as a camping spot year after year for groups that came from outside the reservoir or from nearby sites to hunt the bison which made use of a natural fording area during their migrations. The locale abutting the steeply cut-banked bluffs, together with sufficient forage and the shallowness of the Marias River at this spot, undoubtedly attracted various bison herds which in turn attracted local Indian groups to hunt there for short periods of time. There the bison were slaughtered, skinned, and the flesh was cooked and prepared for transportation to the permanent abodes of the hunters.

During their visits the Indians did a limited amount of chipping, making articles out of jasper, chalcedony, obsidian, and flint. This was evidenced by chipping debris noted in various spots in the site. Having come from their permanent settlements and intending to stay only a short time, the Indians carried along the barest of essentials. Very few clay vessels, or bone and stone tools, were among this equipment. At no time was the population of this encampment a large one. The site probably was occupied by only a single family group or a very small communal body.

Wedel seems to think that the pottery from the Galata site corresponds to a group of sherds recovered from the Ethridge site, a bison fall 8 miles north of Ethridge in Toole County. He is also of the opinion that "a Plains archeologist, inspecting them without previous knowledge as to their provenience would, with little or no hesitation, at once suspect a late prehistoric horizon" (Wedel, 1951, p. 135).

# REFERENCES

Cooper, Paul L.

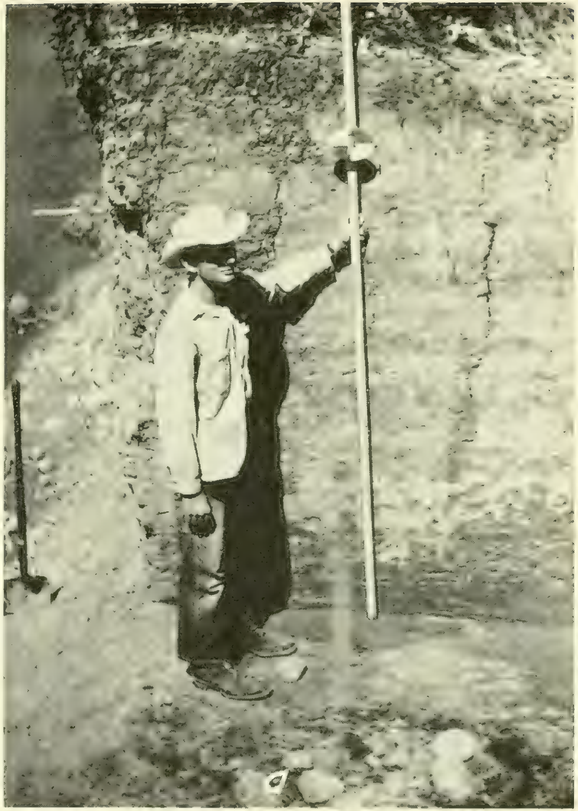
1955. The archeological and paleontological salvage program in the Missouri Basin, 1950–1951. Smithsonian Misc. Coll., vol. 126, No. 2.

Enger, Walter G., Jr.

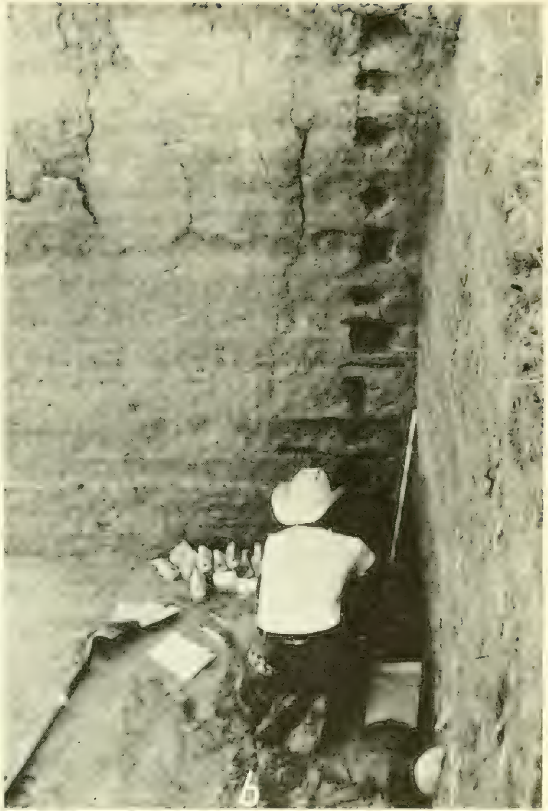
n.d. Field notes for field season 1950.

Wedel, Waldo R.

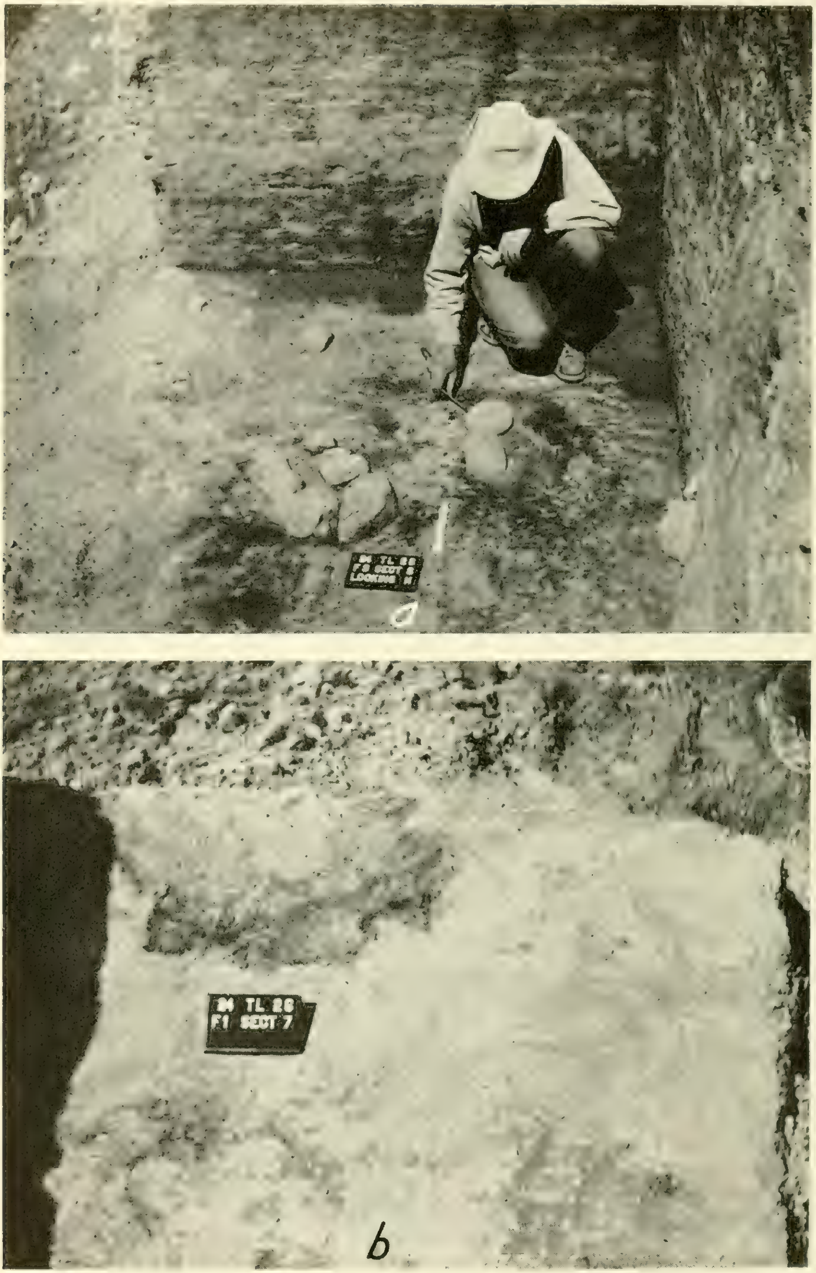
1951. Notes on aboriginal pottery from Montana. Journ. Washington Acad. Sci., vol. 41, No. 5, pp. 130–138.



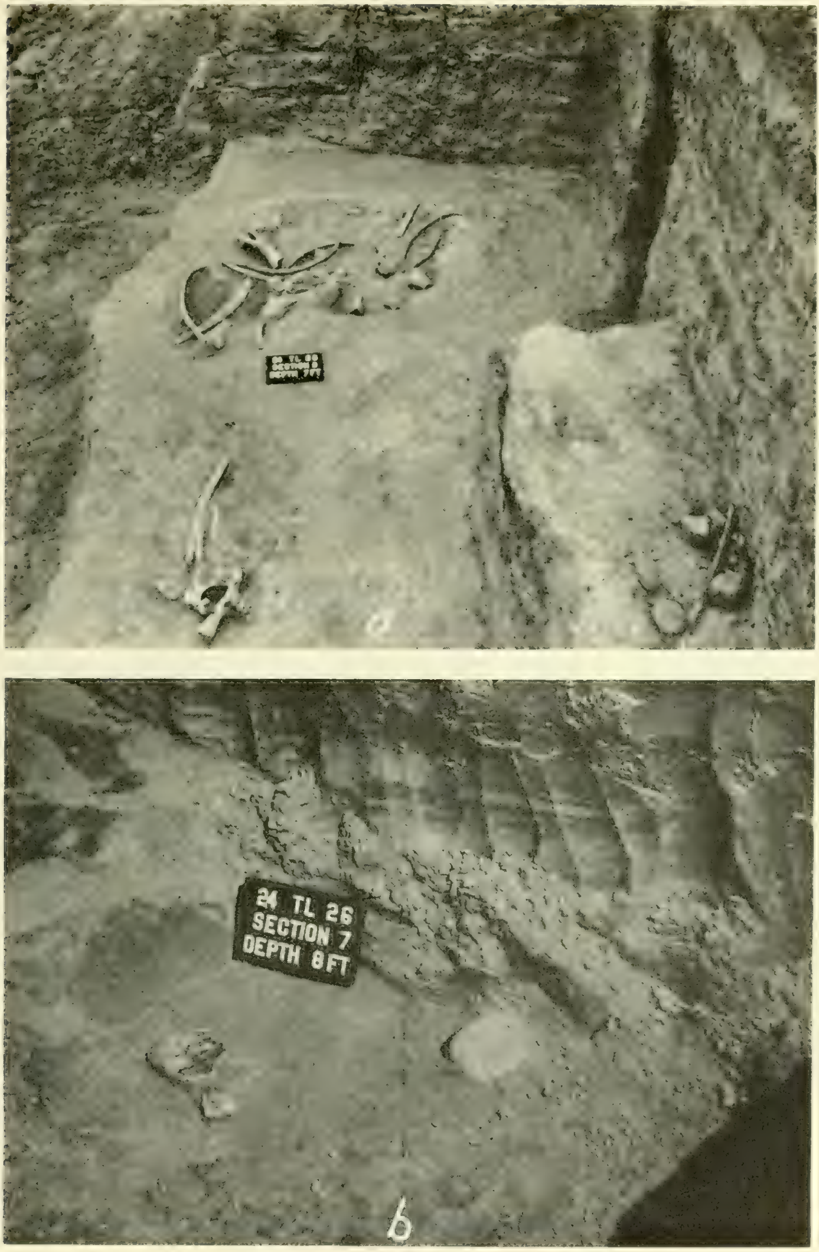
*a*, Natural stratigraphy in Section 6 along north wall.



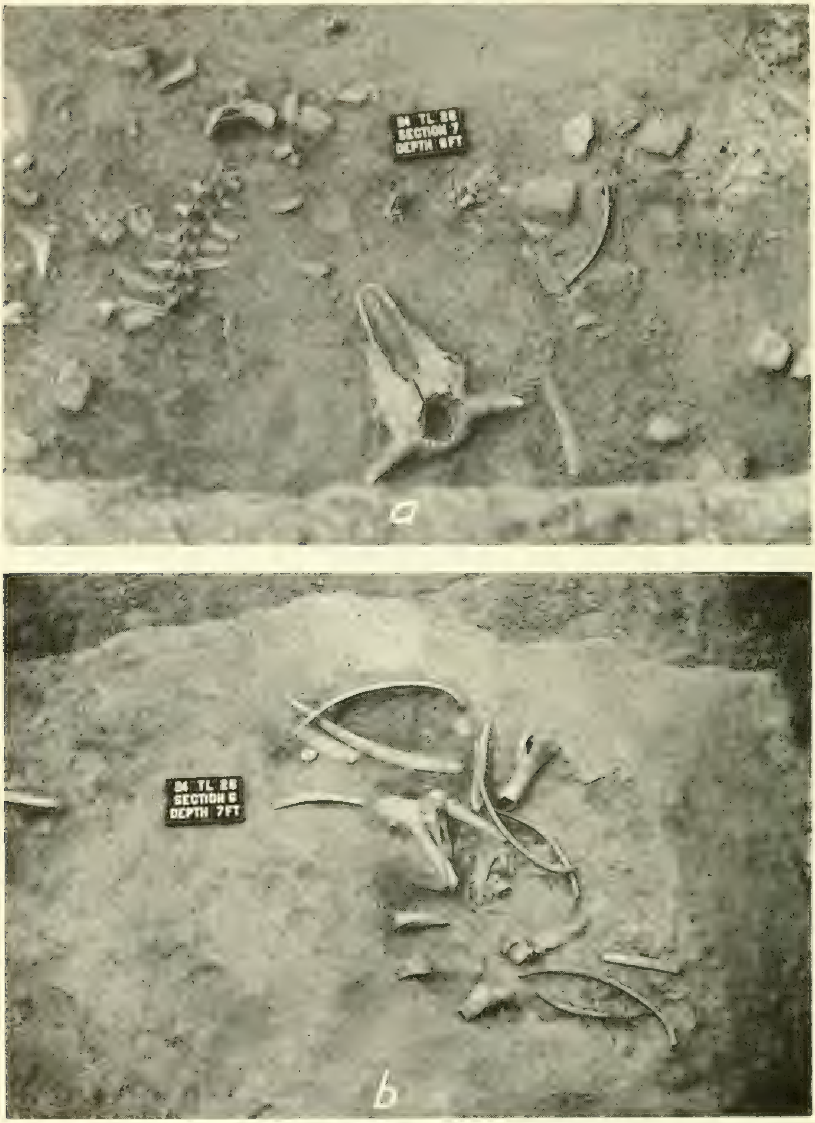
*b*, Man taking soil samples from north wall of Section 6.


a
F3 SECT 6
LOOKING N
F1 SECT 7
b

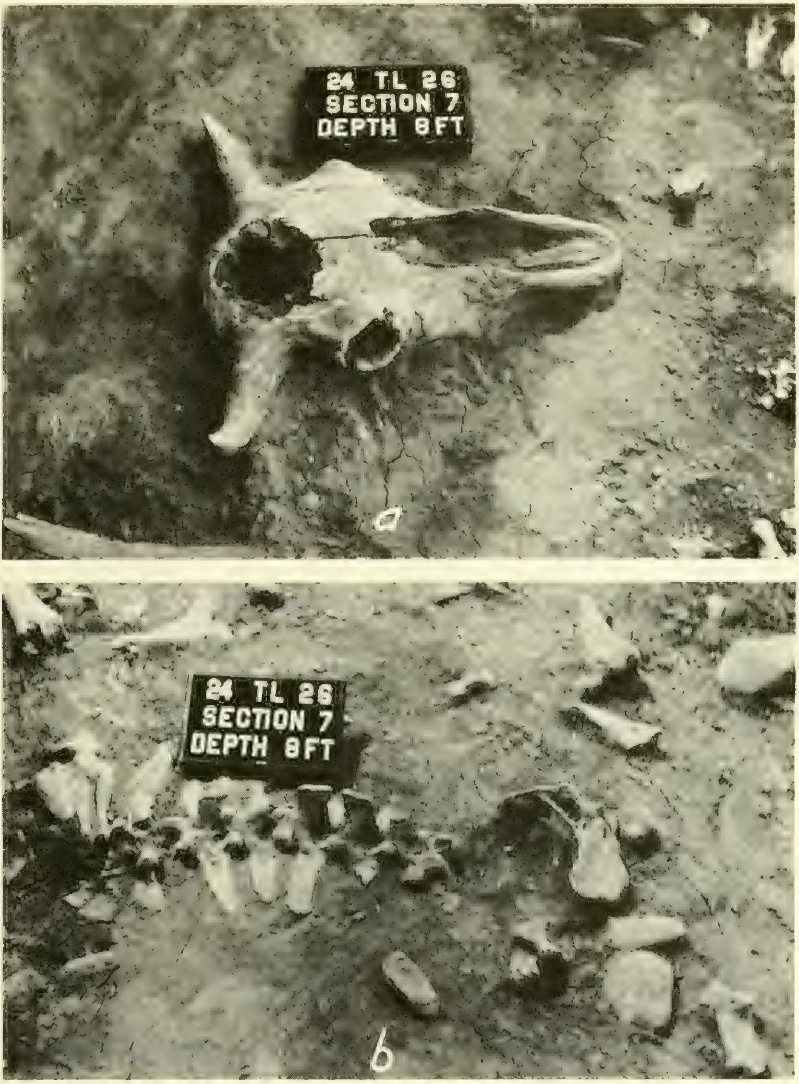
*a*, Cooking area with associated cooking stones, Feature 3, Section 6. *b*, Irregular-shaped hearth area, Feature 1, Section 7.


a
24 TL 26
SECTION 7
DEPTH 8 FT
b

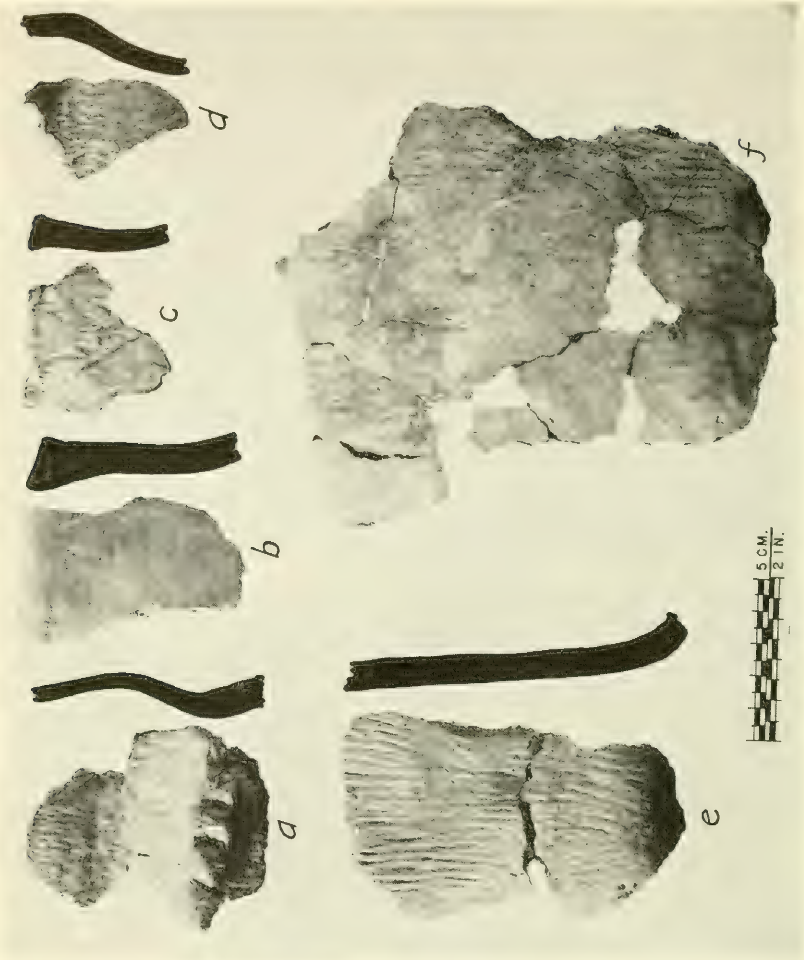
*a*, Section 6, position of bones on 7-foot level; *b*, Section 7, aggregate of sherds on 8-foot level.


TL 28
SECTION 7
DEPTH 8FT
a
TL 28
SECTION 6
DEPTH 7FT
b

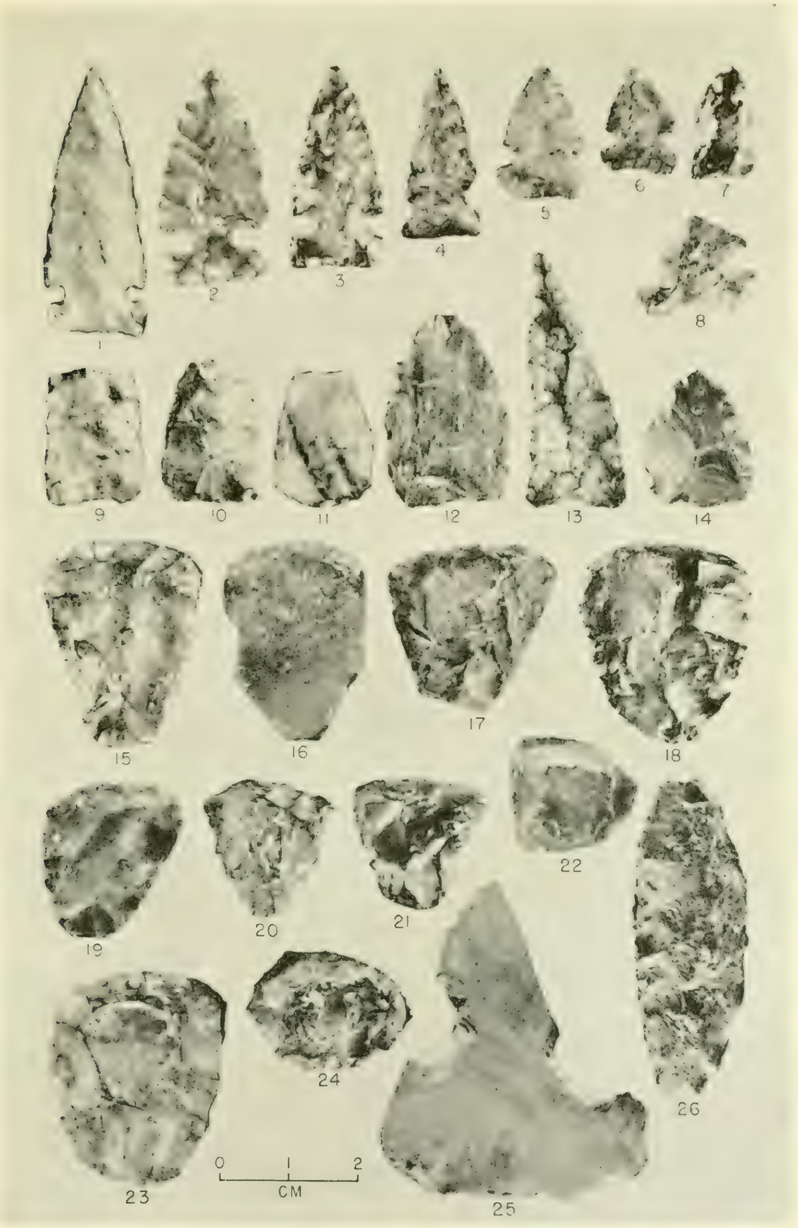
*a*, Articulated bison cervical vertebrae associated with scattered deer bones and perforated frontals in bison skull as found in Section 7 on the 8-foot level. *b*, Pocket of miscellaneous bison bones on 7-foot level, Section 6.


24 TL 26
SECTION 7
DEPTH 8FT
a
24 TL 26
SECTION 7
DEPTH 8FT
b

*a*, Female bison skull with opening in frontals for extraction of the brains, Section 7, at 8-foot level. *b*, Articulated bison cervical vertebrae, Section 7, at 8-foot level.


a
b
c
d
e
f
5 CM.
2 IN.

Pottery sherds from site 24TL26, Tiber Reservoir.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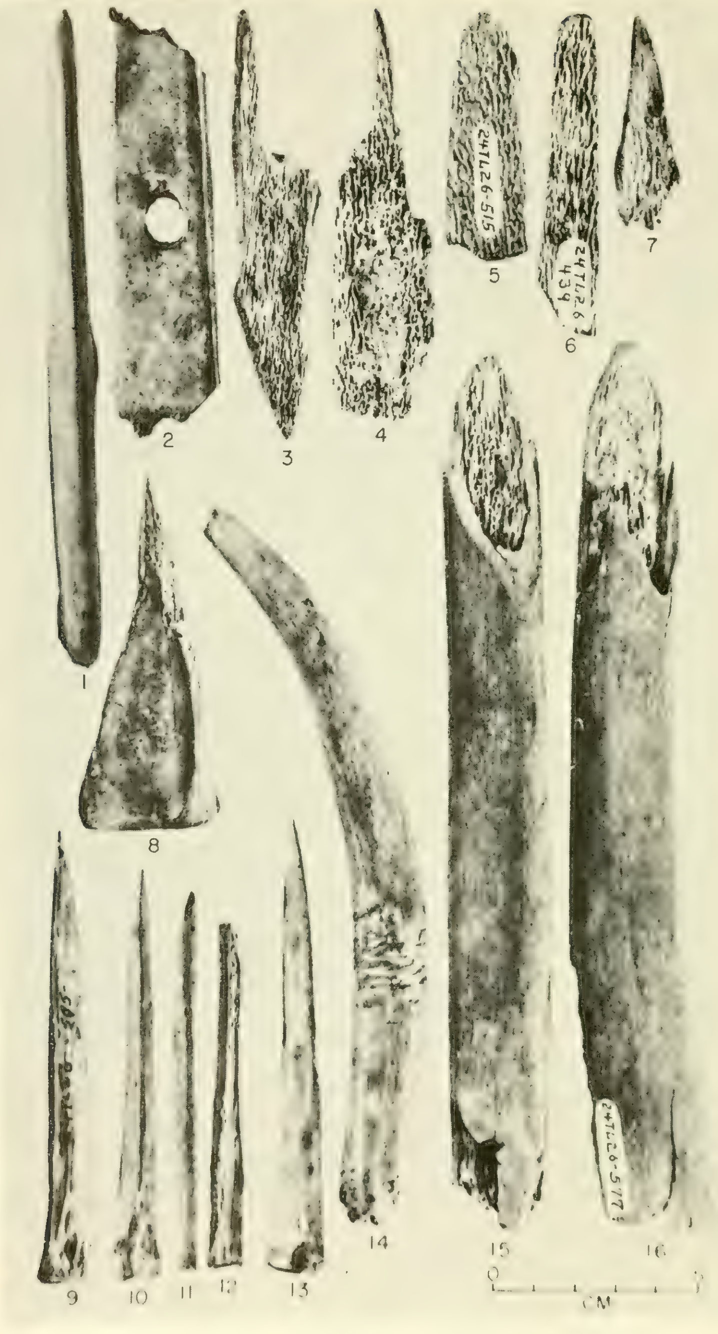
Chipped-stone artifacts from site 24TL26, Tiber Reservoir.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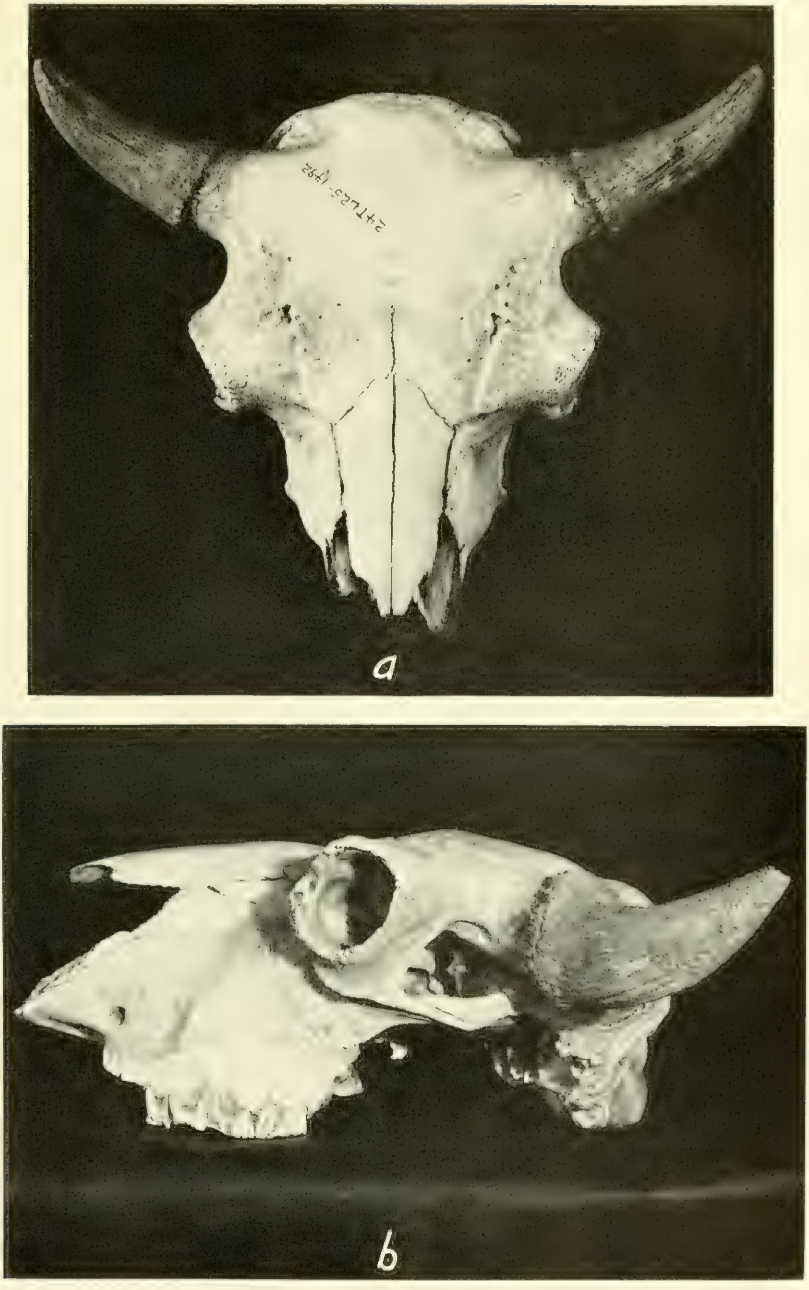
Bone and antler artifacts from site 24TL26, Tiber Reservoir.



Transitional form from *Bison occidentalis* Lucas to *Bison bison* Linnaeus, 1758.

SMITHSONIAN INSTITUTION
Bureau of American Ethnology
Bulletin 185

# River Basin Surveys Papers, No. 32

# Archeological Salvage Investigations in the Lovewell Reservoir Area, Kansas

By ROBERT W. NEUMAN

597967—63——31

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# ARCHEOLOGICAL SALVAGE INVESTIGATIONS IN THE LOVEWELL RESERVOIR AREA, KANSAS[1]

By Robert W. Neuman

## INTRODUCTION

Lovewell Reservoir is located on White Rock Creek in Jewell County, north-central Kansas. An earthfill dam is situated on the creek about 15 miles west of its confluence with the Republican River (legal designation E½ sec. 7, T. 2 S., R. 6 W.). The dam, constructed by the Bureau of Reclamation, will create a lake about 9 miles long east to west and a little over a mile wide (see Lovewell Reservoir map, fig. 41). The maximum pool will cover 4,960 acres, while the normal pool level will flood 2,610 acres of land.

Lying near the geographical center of the United States, the area of the reservoir undergoes a Continental climate. Winters are quite cold, and the summers are relatively warm. In Jewell County the mean temperature for January is 25.6° F.; for July it is 79° (Flora, 1948). A prevailing low humidity alleviates some discomfort during temperature extremes. The average annual rainfall is 25.11 inches. Most of the precipitation, 70 to 77 percent, comes in the early spring and summer when it is most effective for growing crops. The prevailing wind is southerly from April through November and from the north during all the remaining months.

Physiographically, the reservoir lies in the Plains Border Region (Fenneman, 1931). Cretaceous formations give rise to eastward-facing escarpments which for the most part are naturally dissected and appear as broad, hilly belts. Bedrock exposures are rare, but outcrops of Carlisle Shale and Niobrara Chalk may be seen on the southern escarpments. The valley bottoms are covered with rich alluvium. To the north the land slopes up gently and extends onto low, rolling hills.

The bottom land and adjacent areas to the north have been extensively cultivated for at least 70 years, while the bluff tops and steep slopes have been used for pasturage and no doubt still maintain much of their native vegetation. Along White Rock Creek and its tributaries there exists a thick growth of deciduous forest. In recent times winter wheat, grain sorghums, and corn have been the principal crops, supplemented by cattle raising.

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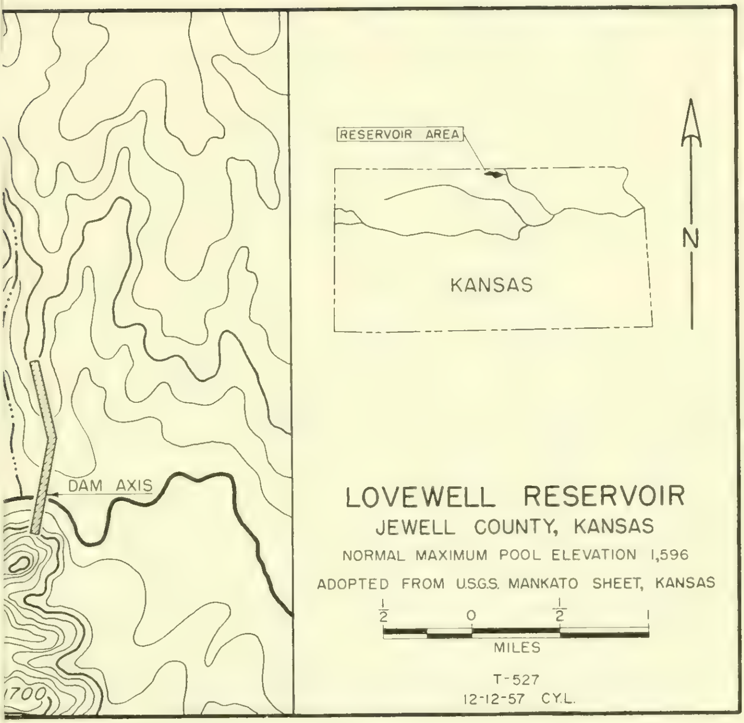
[1] **Submitted August 1958; slight revisions May 1961.**

Previous archeological investigations in Lovewell Reservoir were undertaken in 1935 by George Lamb, who conducted a preliminary survey of the White Rock and Warne sites. A more intensive investigation was carried out by Paul Cooper and George Lamb at the White Rock site in 1937 under the sponsorship of the Nebraska State Historical Society. A complete report of their excavations has been published in a master's thesis by Mary Kiehl Rusco (1960). In 1951 Franklin Fenenga conducted a survey of the entire reservoir for the Missouri River Basin Surveys. Material collected from these past investigations has been compared and considered in the compilation of this report.

During the summer of 1956 the author directed a 10-man archeological field party of the River Basin Surveys, Smithsonian Institution. A temporary field headquarters was established within the presently flooded Lovewell Reservoir from June 12 to August 18, and extensive excavations were conducted at one burial mound and three prehistoric occupational sites. Surface surveys were carried on and material was collected at all other known archeological sites in the reservoir area. This work was a segment of the Inter-Agency Archeological Program for the recovery of archeological and paleontological remains in areas to be flooded by the construction of dams.

Archeological excavations and reports would not be possible were it not for the assistance and cooperation of many individuals. I am deeply grateful to Lee Madison, who acted as field assistant, and to members of the crew, Russel Brown, James Botsford, Charles Eyman, Steve Flood, Richard Jensen, Eugene McCluney, Nicholas Ourusoff, James Stanek, and Mrs. Myron Intermill, our cook. I wish to express my thanks to the staff of the Missouri Basin Project of the River Basin Surveys, and to Marvin Kivett of the Nebraska State Historical Society Museum, who always made his time and the collections of the museum readily available. My wholehearted appreciation goes to Dr. Robert L. Stephenson, River Basin Surveys, and to Dr. John L. Champe, University of Nebraska, for their advice and assistance in the writing of this report.

Dr. Theodore E. White, Dinosaur National Monument, identified the osteological remains; Dr. Joseph P. E. Morrison, United States National Museum, the molluscan collection; and Dr. Norton H. Nickerson, Cornell University, the vegetal material.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MILES

LOVEWELL RESERVOIR
JEWELL COUNTY, KANSAS
NORMAL MAXIMUM POOL ELEVATION 1,596
ADOPTED FROM U.S.G.S. MANKATO SHEET, KANSAS

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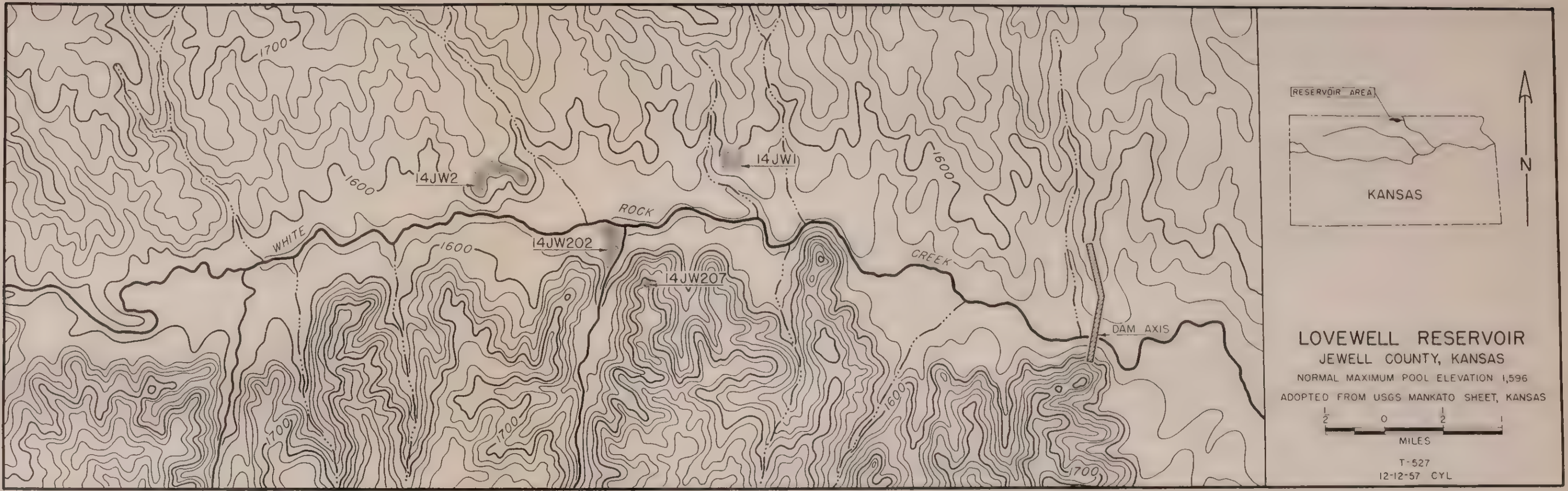
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FIGURE 41.—Map of Lovewell Reservoir area.

## WHITE ROCK SITE (14JW1)

### DESCRIPTION OF THE SITE AND EXCAVATIONS

This site lies on the top of, and extends down the southwest slope of, a broad, low ridge at an elevation of about 1,590 feet above mean sea level. The legal description of the location is SW¼ sec. 3, T. 2 S., R. 7 W., sixth principal meridian. It is bounded on the south by White Rock Creek and on the northeast by an unnamed intermittent stream (pl. 46, *a*). The land has been cultivated since the 1880's, and the ridge slopes show a high degree of erosion. A reddish-orange soil, mixed with limestone concretions, covers the surface, and a hard claypan exists immediately below the plow zone. When exposed, the subsoil becomes dry and is extremely difficult to dig. Scattered about the surface were potsherds, flint chips, and a few bone fragments; also, numerous pieces of burned Niobrara Chalk were quite noticeable.

Previous excavations were carried on at the White Rock site by Paul L. Cooper and George Lamb in 1937 as a part of the WPA–University of Nebraska archeological program. Details of these investigations have been reported (Rusco, 1960), and are summarized below in order to clarify the complete record of archeological work at the site.

Nine excavation units were completed and have been numbered X1 through X9. The first excavation, conducted to investigate Feature 13, identified as a house structure, revealed a layer of dark soil mixed with charcoal, burned earth, pottery sherds, three corn kernels, and worked and unworked bone fragments extending from the surface to the level of the fireplace. "This dark mixed soil was removed in an area 26 feet east and west by 26.5 feet north and south, . . . At the edges of the excavation, dark soil was found to a depth of 1.1 feet below the surface, becoming gradually deeper toward the fireplace, where it was 1.7 feet below the surface. No distinct outline which might mark the house edge was observed. The soil was lighter, and fewer artifacts were found at the edges of the excavation than at the center" (Rusco, 1960). Ten postholes were located; their locations from the fireplace are as follows:

6.5 feet northwest
8.0 feet northwest
5.8 feet northwest
4.8 feet northeast
12.0 feet east
7.5 feet east
7.0 feet southeast
7.5 feet south
6.0 feet south
6.8 feet southwest

Five small basin-shaped pits were excavated. All were filled with dark soil containing potsherds, unworked stone fragments, pieces of bone, ash, burned earth, and charcoal. Their dimensions are given below:

| Number | Diameter at top | Diameter at bottom | Depth at center |
|---|---|---|---|
| | *Feet* | *Feet* | *Feet* |
| X3 | 3.0 | No data | 0.7. |
| X4 | 2.5 | 1.5 | 2.25. |
| X7 | 1.7 | No data | .7. |
| X8 | 1.5 | No data | .7. |
| X9 | No data | No data | No data. |

Two bell-shaped cache pits were excavated. They contained burned earth, charcoal, potsherds, worked and unworked stone, and unworked bone. Their dimensions are as follows:

| Number | Diameter at top | Diameter at bottom | Depth at center |
|---|---|---|---|
| | *Feet* | *Feet* | *Feet* |
| X2 | 3. 4 | 3. 9 | 3. 3 |
| X5 | 2. 8 | 3. 6 | 3. 25 |

X6 was identified as the remains of a house structure. Five postholes were excavated, and their distance and direction from what appeared to be a fireplace was recorded. There was no indication of the house edge. The distance and direction of the postholes from the fireplace are given below:

4.5 feet northwest
3.3 feet northeast
3.3 feet southeast
4.0 feet southwest
8.3 feet northwest

During the summer of 1956 test excavations were conducted at the site by a field party of the Missouri Basin Project. Seven 5×5 foot test pits were dug wherever there appeared to be a concentration of cultural detritus. The soil was removed by 6-inch levels. Written records and photographs were used to verify features. Squares 1, 2, 3, 4, and 6 were excavated to a depth of 18 inches below the surface. Cultural material was almost totally lacking below the loose topsoil or plow zone, which extended downward to about 6 inches below the surface. At 5 inches below the surface, a semicircular soil discoloration, Feature 8, began to appear toward one side of test square 5. In order to follow the extent of the soil stains, test square 7 was laid out adjacent to No. 5 and excavated down to the same level. At first, Feature 8 appeared to be a small circular fire basin, but while trying to determine its actual dimensions, it soon became apparent that the feature was a cache pit. Soil within this cache pit was stained with specks of charcoal and was darker than the surrounding earth. The cache contained a large amount of bison bones in a very poor state of preservation, a few potsherds, pieces of red ocher, and flint flakes. The pit was 28.5 inches in diameter at the mouth; it extended straight down for 9 inches, at which point it began to bulge into a bell shape. As it curved inward at the base, a rather ovoid portion dipped down toward one side to form a small pocket cache. The main cache had a maximum depth of 35 inches and a maximum diameter of 36 inches. The floor was 23 inches in diameter and was flat (pl. 46, *b*).

In addition, a north–south trench (Excavation Unit 1) was excavated. This trench was 40 feet long and was divided into eight 5-foot squares, North 200 West 5 to North 235 West 5. Each square was given a designation according to its location east, west, north, or south from the primary lines. A ninth square, North 210 West 10, was carried 5 feet farther west than any of the others. Just as in the test squares, Excavation Unit 1 revealed little or nothing below the plow zone. A flint knife blade (Group 2) was located in North 235 West 5, at a depth of 2.5 inches below the surface. In square North 210 West 5, a dark semicircular soil stain began to appear near the western extension of the excavation. Square North 210 West 10 was dug down to the same level, so as to follow out the expansion of the disturbance. This disturbance, Feature 6, appeared to be a small firepit, which was cross-sectioned and then cored out in order to obtain a clear picture of its shape. The pit was basin-shaped and had a maximum depth of 1 foot 4 inches, a length of 2 feet 6 inches, and a width of 2 feet 4 inches. Within the fill were badly preserved fragments of bison bone, a potsherd, flint flakes, and a small concentration of hematite. Scattered throughout the fill were bits of charcoal and burned bone. The top of this feature was located 3 inches below the surface. No other features of cultural significance were located at the site nor was evidence found of structures or habitations.

## ARTIFACTS

### POTTERY

There are 11 rims and 173 body sherds from the site which may readily be grouped into a single type and will be described as such. One rim and three body sherds will be described separately.

#### TYPE: Walnut Decorated Lip

PASTE:

*Temper:* Moderate amounts of medium- to coarse-grained sand.

*Texture:* Granular. Sherds tend to crumble and surface rubs off easily.

*Hardness:* Most sherds have a hardness of 3 (calcite).

*Color:* Buff to gray, buff predominates. A few sherds are light orange, probably as a result of overfiring, and a smaller number are slate-black, caused by fire-smudging.

SURFACE FINISH:

*Interior:* Usually smooth; on a few sherds grains of sand protrude.

*Exterior:* Most of the sherds are too small to permit analysis of their surface treatment, but identifiable ones have been simple-stamped and partially smoothed while the clay was still plastic.

DECORATION:

*Techniques:* Impressions made with a cylindrical object; incised lines made with a pointed object; trailed lines made with a blunt tool; impressions made with a finger or thumb. All these techniques employed while the clay was still plastic.

*Pattern:* A single row of finger or tool impressions on the lip or on the rim interior at the lip.

The most common forms of decoration on the shoulder area are: Parallel incised or trailed lines; opposing diagonal or opposing horizontal and vertical incised or trailed lines.

There are 20 body sherds decorated with two or more parallel lines; 9 of these are incised lines and 11 are trailed. Two body sherds are decorated with opposing diagonals, trailed lines on both sherds. Two body sherds are decorated with lines and punctations. One has parallel trailed lines and the other has one parallel and two diagonally opposing incised lines above a group of fine and seemingly scattered punctations.

*Distribution:* All vessels are decorated on the lip or on the rim interior at the lip. Shoulder sections are frequently, if not invariably, decorated. Rims are all plain except one that has a single horizontal trailed line.

FORM:

*Lip:* Rounded on seven and flat on four of the sherds.

*Rim:* Eight are large enough to show their form. All these are slightly flaring.

*Neck:* Constricted on all sherds large enough to give indication.

*Shoulder:* Data not available.

*Appendages:* One straphandle found on the surface. It is small and appears to have come from a miniature vessel.

DIMENSIONS:

*Rim height:* Range from 12 to 38 mm.

*Thickness:* Body sherds range from 3 to 8 mm.; the majority are 4 mm. thick. Rims range from 4 to 9 mm.

### MISCELLANEOUS SHERDS: One rim and three body sherds

The rim sherd is shell-tempered and chalky in texture and slate-black in color. The lip is rounded and has blunt punctations about 8 mm. apart on its top. On one section of the rim it appears as if an appendage has been broken off. The rim is slightly flaring. This sherd was located in association with the single cache pit found at the site in 1956. The three body sherds, all located on the surface, are shell-tempered and buff in color. No decoration is observed on these sherds. The above-mentioned shell-tempered sherds compare favorably with pottery from the Warne (14JW2) and the Intermill (14JW202) sites.

## STONE

PROJECTILE POINTS: Nine specimens.

*Group 1:* 3 specimens. All triangular, with convex sides and very slightly concave bases (pl. 52, *h*). One lacks the tip, and another has been broken in half. Two are made of flint, the other is chalcedony.

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* | *Weight, gm.* |
|---|---|---|---|
| 23 | 15 | 3 | 1. 0 |
| 18 | 14 | 3 | . 5 |
| 18 | 14 | 3 | |

*Group 2:* 3 specimens, triangular, with convex sides and slightly convex bases (pl. 52, *g*). One of the faces on each of the specimens is convex, while the other face is flat and lacks chipping except along the edge. All are made of flint. Similar specimens are reported from the Burkett and Gray-Wolfe sites in east-central Nebraska (Dunlevy, 1936).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* | *Weight, gm.* |
|---|---|---|---|
| 23 | 17 | 4 | 1. 4 |
| 18 | 14 | 3 | . 75 |
| 27 | 21 | 4 | 2. 1 |

*Group 3:* 3 specimens. One is a basal section with side notches and a slightly concave base; the others are tip portions with chipping on both faces. All are made from flint.

KNIVES: 12 specimens.

*Group 1:* 11 specimens. Fragments of bifacially worked chert and jasper. All are irregular in shape except one rectangular piece which appears to be a midsection of a carefully chipped knife. It is ovoid in cross section and displays fine bifacial chipping.

*Group 2:* 1 specimen, a triangular flint blade displaying rather large, crude, bifacial percussion flaking. The base and two sides are straight, but quite rough (pl. 53, *e*).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|
| 59 | 10 | 49 |

SCRAPERS: 63 specimens.

*Group 1:* 16 specimens. Chert and jasper scrapers of irregular shapes. All have a semicircular notch chipped into one portion of the edge. There is secondary chipping along other sections of the edges (pl. 54, *d* and *g*). Possibly a combination scraper and saw (Cosner, 1956).

*Group 2:* 9 specimens. End scrapers, trianguloid in cross section and rectangular to ovoid in form (pl. 54, *j*). Two of the specimens have the sides retouched and the cutting edges formed by careful pressure flaking. Six scrapers are rather irregular and have secondary chipping over part, but not all, of the cutting edges. One scraper has fine chipping only on a small portion of the end. It is convex on the upper surface, but unlike the others in this group, it is concavo-convex.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 33–78 | 17–29 | 6–12 |

*Group 3:* 5 specimens. End scrapers that have had the keel removed. They are rectangular to ovoid in form (pl. 54, *p*). All the specimens have fine chipping along most of the cutting edges.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 31–41 | 16–25 | 6–8 |

SCRAPERS: 63 specimens—Continued

*Group 4:* 33 specimens. Small irregularly shaped flakes that have been converted to use by removal of chips along one or more of the edges. These specimens appear to be fashioned from discarded flakes.

ARROWSHAFT SMOOTHERS: 1 specimen. A fragment of sandstone, triangular in cross section. There is a groove on each of two sides running down the long axis of the tool. The grooves are 5 and 7 mm. wide (pl. 55, *g*).

SHARPENING STONES: 3 specimens. Two fragments of sandstone and 1 of limestone, with random grooves on one or more faces. The grooves are shallow and narrow, giving the impression that the specimens were only slightly used.

RUBBING STONE: 1 specimen. A fragment of quartz that displays two different surface treatments. One portion is rugged and has been used as a pecking surface, while the other is extremely smooth.

## SHELL

One specimen. A small piece of mussel shell located on the surface. It appears to have been smoothed, but is too small to identify as to its use.

## MINERALS

One sample of crumbled and powdery hematite located in a basin-shaped pit.

## SUMMARY

In summary it may be said that the investigation in 1956 of the Smithsonian Institution field party added more evidence to the thesis put forth by Mary Kiehl Rusco in 1960, which states that 14JW1 represents a component of the Glen Elder Focus, White Rock Aspect. Although only a small amount of pottery was recovered in 1956, when added to the collection obtained in 1937 (248 rims; 1,977 body sherds), it is thought to be an adequate sample. By far the majority of the sherds fall within the type indentified as Walnut Decorated Lip. A small portion of the rims located in 1937 were grouped under Miscellaneous because they lack any decoration on the lip or on the lip interior but resemble Walnut Decorated Lip in all other respects. One rim has been identified as resembling pottery found at Aksarben sites. A total of 1 rim and 23 body sherds located at the site are shell-tempered and quite similar to pottery found at Oneota sites and sites with Oneota associations.

Most of the pottery was collected from the surface. The excavations revealed no identifiable stratification of cultural or natural layers. The pottery types were intermixed, indicating an incorporation of some foreign or new traits while the people of the Glen Elder Focus occupied the region. The amount of cultural material scattered about the surface and the shallowness of these deposits suggest that the site may have been a semipermanent village. Two excavations may have been habitations, but the archeological evidence is not conclusive. Cache pits, bison-scapula hoes, and corn kernels indicate that these people were at least partially horticultural. The general lack of other bones seems to suggest either that hunting was not too important, or that they butchered their kill away from the village.

## INTERMILL SITE (14JW202)

### DESCRIPTION OF THE SITE AND EXCAVATIONS

This site lies on a terrace west of the junction of White Rock Creek and an intermittent stream called Johns Creek. The main concentration of cultural material was scattered about the surface at a bend on the south side of White Rock Creek, but it should be noted that the site extended approximately 400 yards south along the west bank of Johns Creek· Excavations were conducted in the area of the creek bend because the concentration of cultural detritus was greatest in this region and also because this section of the site was not under cultivation at the time. The exact legal location of the creek bend is SW¼SE¼ sec. 4, T. 2 S., R. 7 W. The elevation is 1,582.6 feet above mean sea level. This area will be entirely flooded when the reservoir is at normal pool level.

The terrace soil is composed of dark alluvium overlaying a light yellowish hard-packed clay. Much of the soil is deposition resulting from the numerous floodings of the two creeks. Natives of the area state that the flooding of the terrace was not an unusual occurrence; the most recent flood took place in 1951. Both creeks overflowed their banks three times in the summer of 1956, but the terrace was not flooded.

Excavations were begun by digging test pits wherever there appeared to be an accumulation of material on the surface. Eleven 5 by 5-foot pits were excavated by scraping the soil horizontally. Test squares Nos. 1, 3, 4, 6, 8, 10, and 11 were excavated down to a depth of 18 inches below the surface. Occasional specks of charcoal, potsherds, flint chips, and stone artifacts were located in the top soil layer or plow zone, which extended down to about 7 inches below the surface. Below this depth the soil was culturally sterile. In test square 2, four small unworked rocks, one fragment of badly decomposed bone, and one flint chip were located in the center of a light concentration of charcoal. This feature, No. 2, was located 6 inches below the surface. It appears to have been a temporary fireplace, but a pit outline was not visible. The feature was excavated, and then the entire test square was extended down 24 inches. Test pits 5 and 7 were excavated down 24 inches, but nothing of archeological significance was encountered below 10 inches.

The next investigation was conducted in the northeast section of the terrace and was designated Excavation Unit 1. This east–west trench consisted of eight 5-foot squares. Each square was given a designation according to its location on a grid oriented on magnetic north. The method of excavation was the same as applied to the test pits. Square North 300 West 25, located at the east end of the trench, was excavated to 48 inches below the surface in order to investigate the possibility of a deep or unknown occupation level. Approximately 10 inches from the bottom, the soil profile revealed long, thin lenses of light-colored silt. These lenses appeared to have been caused by deposition in times of flooding. All the other squares were scraped down through the 18-inch level. Not a single artifact was located below the plow zone, but within it a scanty concentration of cultural material was encountered. During the preliminary investigation of Excavation Unit 1, some small, dark, circular soil stains were noticed. At first these stains were thought to be rodent runs, but after cross sectioning and coring out each of them, they were definitely established as being postmolds. Soil within each of the molds was darker in color and less compact than the surrounding earth. The postmolds seemed to show a denser distribution toward the south side of the trench, so the entire excavation was extended an additional 15 feet to the south. By scraping the soil, a total of 162 postmolds were located in an area 20 by 40 feet. A few of the postmolds contained bits of charcoal; one contained a potsherd, and another a few kernels of corn. The majority of the stains were encountered between 9 and 12 inches below the surface. Their diameters ranged from 1 to 6 inches, with the majority measuring from 2 to 3 inches. The depth of the actual postmolds ranged from 0.5 to 7.5 inches, but most of them were from 2 to 4 inches deep. Their distribution appeared as a random scattering and lacked any indication as to the type or number of the structures they represented (pl. 47, *a*).

Owing to the short time available, and with other sites yet to be investigated, it was decided to hire a bulldozer in order to see what would be encountered if a large area of the subsoil was revealed. A Cat-8 was employed to remove a small amount of the topsoil. A north–south trench and an east–west trench were 10 feet wide and together 232.5 feet long. Twelve inches of the topsoil was removed. The crew followed the bulldozer, marking anything that appeared archeologically significant (pl. 47, *b*). The dirt piles on the sides of the trenches were also investigated. Within the trench cuts, only two cultural features were located. Feature 41 in the north–south trench revealed what appeared to be a charred cornstalk and some burned earth about 5.6 inches beneath the surface. Two postholes, lying about 2 inches apart, were located 6 feet west of the burned area. One had a diameter of 2 inches and a depth of 8 inches; the other measured 1.5 inches in diameter and 3.5 inches in depth. A single flint chip was found within the fill of one of the postholes. The soil around the area of Feature 41 was scraped with shovels, but nothing else of cultural importance was uncovered. Feature 45, located in the east–west trench, appeared as a dark, ill-defined, circular area containing specks of charcoal and burned earth. Upon investigation, in which the feature was cross sectioned and cored out, it appeared to have been a small conoidal-shaped firepit. Charcoal, flint chips, burned earth, and one corn kernel were located in the fill. The pit was 9.5 inches in diameter at the top and 8.2 inches deep at maximum depth. About 1.5 feet southwest of the firepit, a single posthole was located. It measured 3.5 inches in diameter and 2 inches in depth. The completion of Feature 45 terminated the excavations at the Intermill site.

## ARTIFACTS

### POTTERY

There are 9 rims and 149 body sherds from the site that may be described under a single type. The 3 additional rims and 12 body sherds will be discussed separately under a miscellaneous grouping.

#### TYPE: Walnut Decorated Lip

Nine rims and 149 body sherds.

PASTE:

*Temper:* Moderate amounts of fine- to coarse-grained sand.
*Texture:* Granular. Sherds tend to crumble, and the surface rubs off easily.
*Hardness:* Most sherds have a hardness of 3 (calcite).
*Color:* Buff to dark gray, buff predominates. A few sherds are light orange in color, possibly a result of overfiring.

SURFACE FINISH:

*Interior:* Usually smooth. On a few sherds, grains of sand protrude.
*Exterior:* 36 body sherds show simple-stamping with paddle marks partially removed. The majority of the sherds are too small to give definite indication of their treatment.

DECORATION:

*Techniques:* Impressions made with a cylindrical object; trailed lines made with a blunt tool. These techniques were employed while the clay was still soft.
*Pattern:* A single row of tool impressions around the lip or on the rim interior at the lip; parallel trailed lines on the shoulder area. Eleven body sherds are decorated with one to two trailed lines. Two body sherds are decorated with trailed lines and punctations.
*Distribution:* All vessels are decorated on the lip or on the rim interior at the lip. Necks of all the vessels are plain.

Form:

*Lip:* Rounded on eight and flat on one rim sherd.

*Rim:* Straight on one and slightly flaring on two. The other rims are too small to give an indication.

*Neck:* Constricted.

*Shoulder:* Quite angular at the junction of the shoulder and rim. Only one specimen was large enough to show this characteristic.

*Appendages:* None located.

Dimensions:

*Rim height:* 15 to 35 mm.

*Thickness:* Range from 3 to 9 mm. Most of the body sherds are about 4 mm. in thickness. Rims range from 4 to 8 mm. in thickness.

### MISCELLANEOUS SHERDS

Three rims and twelve body sherds.

Two rims and nine body sherds, shell-tempered, from light buff to dark gray in color. One small rim is decorated with blunt tool impressions on the lip. The other rim is decorated with blunt tool impressions extending down diagonally from the top of the lip to the interior of the rim.

Two of the body sherds are decorated. One has parallel trailed lines about 8 mm. apart, the other has two punctations. The remainder of the sherds are plain. The shell-tempered body sherds range in thickness from 4 to 7 mm.

One sand-tempered rim has two horizontally trailed lines about 5.5 mm. apart on the neck. The rim is 5 mm. thick and is light buff in color.

Three small body sherds are sand-tempered and dark to light buff in color. All are cord-paddled on the exterior surface. They range from 4 to 6 mm. in thickness.

### STONE

Projectile Points: 4 specimens, 2 complete. One small triangular point with a straight base. One of the sides is straight, but the other is slightly convex (pl. 52, *d*). The other complete point is triangular with slightly convex sides and a straight base. The other 2 pieces are only small fragments. All are made of flint.

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* | *Weight, gm.* |
|---|---|---|---|
| 13 | 9 | 2 | 0.3 |
| 25 | 14 | 2 | 0.95 |

Knives: 12 specimens.

*Group 1:* 10 specimens. All irregularly shaped fragments with crude bifacial chipping along one or more edges. No whole pieces recovered. Made from chert and jasper.

*Group 2:* 2 specimens. Small rectangular fragments that have been beveled by pressure flaking on alternate sides.

Scrapers: 81 specimens.

*Group 1:* 6 specimens, 4 complete. End scrapers, irregular in outline, but rather triangular in cross section. The maximum thickness is generally adjacent to the cutting edge (pl. 54, *k*).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|
| 41 | 28 | 9 |
| 61 | 39 | 10 |
| 61 | 15 | 7 |
| 25 | 17 | 6 |

Scrapers: 81 specimens—Continued

*Group 2:* 9 specimens. End scrapers similar to the above group except that these have had the "keel" removed. The majority of these are concavo-convex and have fine pressure flaking extending along the edges of three sides. They are rectangular to ovoid in form. The large flake scars on the back usually extend the entire length of the scraper (pl. 54, *h*).

| | *Length, mm.* | *Width mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 20–71 | 17–30 | 3–11 |

*Group 3:* 1 specimen. A double-ended planoconvex end scraper, rectangular in form. There is fine chipping along all edges. The scraper is slightly thicker at one end than at the other. It is 30 mm. long, 21 mm. wide, 6 mm. thick (pl. 54, *q*).

*Group 4:* 30 specimens. All have a semicircular notch chipped into one portion of the edge. Generally there is secondary flaking along one or more of the other edges. They are irregular in size and shape (pl. 54, *e* and *f*). Made of chert and jasper.

*Group 5:* 35 specimens. Flakes of irregular shapes that have been converted for use by the removal of fine chips along one or more edges. They are fashioned from flakes of chert, jasper, and chalcedony.

Unmodified Flakes: 164 specimens. Small flakes of chert, chalcedony, jasper, and quartz that were collected from the excavated portion of the site. The great majority of these specimens were located from 6 to 12 inches below the surface.

Sharpening Stones: 2 specimens. One is a rather bun-shaped fragment of sandstone with a groove running down the long axis. The groove becomes slightly narrower toward one end (pl. 55, *f*). The other specimen is an irregularly shaped fragment of sandstone with numerous random grooves of varying width and depth extending along its surfaces.

Mealing Stones: 3 specimens. The one complete specimen has two flat faces, rounded sides, and is ovoid in form. The faces are smooth, but the sides are very rough. The implement is made of limestone and is 38 mm. thick, 99 mm. long, and 82 mm. wide. Two fragmentary specimens, made of quartz, have rounded and smoothed areas on the outer surfaces.

## SHELL

One minute, unworked fragment of snail shell was located 18 inches below the surface.

## GLASS

Insulators: 2 specimens. Fragments of greenish blue glass that appear to be detached portions of one or more electric insulators. One has the patent date of 1893 inscribed upon it.

Miscellaneous: 3 specimens. Small fragments of glass. Two were located below the surface. The third, a rather triangular-shaped piece, was recovered from the surface. A small area along one of its sides displays some fine pressure flaking. The piece appears weathered and is translucent (pl. 55, *i*).

## METALS

Ornaments: 1 specimen. A tubular copper bead located 6 inches below the surface. It is 23 mm. long and 6 mm. in diameter. The bead was found below the surface, but in the plow zone, or disturbed soil (pl. 55, *j*).

NAILS: 13 specimens.

*Group 1:* 10 specimens. Square nails, generally flat-headed, scattered around the site. These were located from the surface down to 12 inches and were probably associated with a Caucasian homestead that existed there from the 1880's until recently. Complete specimens range from 63 to 118 mm. in length.

*Group 2:* 3 specimens. Wire nails. Located on the surface and in the plow zone, 2 eightpenny and 1 sixpenny.

MISCELLANEOUS: 3 specimens. One iron ring like that found on a horse bridle, 2 pieces of entangled wire, and 1 rectangular piece of iron. All located on the surface or within the plow zone.

## SUMMARY

In summary it may be stated that this site is a component of the White Rock Aspect. The predominant pottery type is Walnut Decorated Lip. Another ware, resembling Oneota pottery, was found intermixed but in a very small percentage. Three small body sherds located on the surface are similar to pottery found at Aksarben sites, but are too small for positive identification. Absence of bone artifacts may be due to the flooding that takes place on the terrace or possibly to the butchering techniques in which the people slaughtered the kill away from the camping area. The postmolds examined are an interesting feature of the site, but their scattered distribution reveals little concerning their function. The lack of firehearths, except in Feature 45, and of any indication of floors in the posthole area, suggests that the posts were not associated with habitations. Possibly they represent such temporary structures as ramadas or meat-and-utensil supports.

In general, there was a lack of cultural material on and beneath the surface. There is a possibility that much of the detritus has been washed away, and that the remaining material is but a remnant of the total. However, when compared with the other sites of the White Rock Aspect, the small amount of material from the Intermill site is not atypical. Evidence that these people engaged in horticulture may be surmised from the presence of corn kernels and the charred cornstalk. The mealing-stone fragments may also be an indication of agricultural practices, although it is well known that they were employed for many uses other than those associated with agriculture. Certainly the alluvium on the terrace would have afforded excellent soil for primitive horticulture. That hide-working tools made up the largest percentage of the stone artifacts recovered is a good indication that hunting played an important role in the economy of the people.

It is my impression that this site was a temporary village occupied by a semisedentary people whose economy was based primarily upon hunting and gardening. Possibly they occupied this site between hunts and engaged in a form of maize-beans-squash horticulture, returning to the village to harvest the crops and then move away again.

## WARNE SITE (14JW2)

### DESCRIPTION OF THE SITE AND EXCAVATIONS

The site lies on the second terrace north of White Rock Creek at an elevation of 1,620 feet above mean sea level and is bisected by Kansas State Highway 14. Cultural material is scattered on the surface for approximately one-half mile east of the highway and one-quarter mile west of it. Most of the detritus was concentrated on the tops of the flat ridges (pl. 48, *a*). The legal designation of the site is Sec. 4 and 5, T. 2 S., R. 7 W. Excavations were carried on in the NE¼ sec. 5. Surface surveys were conducted and collections obtained whenever adverse weather conditions halted excavations. The site has been known by local collectors for many years, and although there were no known excavations prior to 1956, it may be supposed that a good amount of material has been carried away from the site. I was able to see and compare only one collection—that of George Warne.

Test pits were dug wherever there appeared to be an accumulation of cultural material. All artifacts were placed in bags marked according to their provenience within 6-inch levels, and written records and photographs were used to document features. A total of 13 test squares and 1 excavation unit were dug. Squares 1 and 2 were excavated down to 18 inches below the surface, squares 8 and 11, down to 24 inches. These four excavations yielded fragments of bison bone, flint chips, pieces of charcoal, burned limestone, and potsherds. Except for a sparsely scattered few, all the specimens were found in the dark, loose topsoil or plow zone, which extended down to about 6 or 8 inches below the surface.

Test pit 3 yielded a small amount of cultural detritus throughout the plow zone. Below this level a disturbed area was noted in the northwest corner of the square. Soil here was darker and slightly less compact than the surrounding clay. At 9 inches below the surface, pieces of bone, potsherds, and a few flint chips were found intermingled with a concentration of charcoal and burned earth. At first, this was thought to be a firepit, but further testing revealed the outline of a storage cache. The cache, Feature 13, contained 39 potsherds, 2 worked and 1 unworked bison scapulae, 1 fragment of human cranium, 4 pieces of flint, and 1 stone knife. These were mixed with ash, burned earth, and charcoal. The cache walls flared very slightly; its base was irregular, with rounded edges and a high center. The cache measured 36 inches from top to bottom. At the top it was 36 inches north to south and 30 inches east to west.

Test pit 4 yielded an assortment of camp debris throughout the plow zone. Below this soil layer two small caches of unworked flint were encountered. Beneath these, at 2 feet 5 inches below the surface, a circular outline of a cache pit became apparent. The cache was cored and its measurements are given below:

Top diameter: 3 feet 3½ inches north to south
3 feet 4½ inches east to west.
Bottom diameter: 3 feet 5 inches north to south
3 feet 5½ inches east to west.
Depth: 19 inches.

The base of the cache sloped slightly downward toward the center and there was some belling-out of the walls in the first 5 inches above the floor.

Although a definite outline of the cache pit did not show up above the 2-foot-5-inch level, there was a difference in the soil texture and a concentration of cultural material almost up to the plow zone. This suggests that the upper section of the cache pit may have been destroyed purposely or by natural forces and that the portion remaining is only part of the original pit. A total of 166 potsherds, 3 bison scapulae, 1 grainer, 2 incised bison dorsal spine paddles, numerous bone fragments, 7 stone scrapers, 1 beveled stone knife, unworked flint chips, charred wood, a charred corn kernel and corncob, and 1 chalk ball were recovered from the cache. All the material was mixed with ash, charcoal specks, and burned earth.

During excavation of test pit 5, cultural material was recovered from a large portion of the square. At 22 inches below the surface, a meandering outline, extending northwest to southeast, became definite. When the entire square was enlarged, an hourglass outline was revealed which suggested that one cache pit had been intruded upon another. At 33 inches below the surface the outline of two distinct cache pits became apparent.

The southeasterly cache, Feature 15, was then cored and measured.

Top diameter: 4 feet
Bottom diameter: 4 feet 8 inches north to south
4 feet 2 inches east to west
Depth: 2 feet 5 inches

The floor of the cache slanted slightly downward toward the center and joined the walls at a sharp angle. The walls were straight and slanted inward at about a 10° angle toward the mouth. Two basin-shaped pocket caches were located on the floor next to the walls of a large pit, each covered with a single bison scapula. Two other bison scapulae were lying on the floor near the center of the cache. Pocket cache 1 measured 1 foot 1½ inches east–west; 9 inches north–south, and had a maximum depth of 3 inches. Pocket cache 2 was 1 foot east–west, 1 foot 5 inches north–south, and had a maximum depth of 4 inches. Both contained neatly stacked flint knives, choppers, and stone cores.

Material recovered from the cache, Feature 15, consisted of 19 potsherds, bits of shell, 23 stone scrapers, 2 flint knives, flakes, 4 bison scapulae, decayed wood, and charred vegetal matter.

The northwesterly cache was designated Feature 15B. The top of the feature showed up plainly 33 inches from the surface. It was cored and measurements were taken.

Top diameter: 4 feet 8 inches north to south
  4 feet east to west
Bottom diameter: 4 feet 8 inches north to south
  4 feet 10 inches east to west
Depth: 2 feet

The floor of the cache was flat. The walls were slightly convex, slanting inward toward the top at about a 10° angle. There was a rather gentle angle at the juncture of the walls and the floor.

The pit contained 18 potsherds, a cache of about 300 stone flakes, 2 scrapers, 4 bison scapulae, bone fragments, and a poorly preserved section of a wooden log.

Test pit 6 was located directly on top of the ridge. Several fragments of burned bone and two pieces of worked flint were located about 12 inches below the surface. Two small unidentifiable burned areas were also investigated. This square was excavated to a depth of 5 feet to check the possibility of a deeper cultural layer. Nothing of archeological significance was located below the 12-inch level except a single potsherd at 33 inches depth. Rodent disturbance in the area of the sherd explained its unusual provenience.

Test pit 7 was excavated to investigate a small concentration of burned limestone on the surface. The soil was removed in 6-inch levels, and a few specimens were encountered above a depth of 9.5 inches. At this depth a dark, circular soil discoloration was observed which contained burned earth, flint chips, and charcoal specks (pl. 48, *b*). The feature, No. 9, was cross sectioned and then cored. It appeared to be a small temporary firepit, constructed with no more preparation than to dig a basin-shaped hole. The pit measured 12 inches in diameter and had a maximum depth of 7 inches. The fill contained two flint chips, a bone fragment, burned earth, and bits of charcoal. The entire square was later excavated down to 30 inches below the surface. A few pieces of chipped flint and a potsherd were located in the soil above the 18-inch level. Below this, nothing was encountered.

Test pit 9 was located far to the western extremity of the site. Burned limestone, potsherds, and flint chips were recovered from the plow zone. Directly below the disturbed earth, a circular outline of dark soil appeared, surrounded by the sterile yellowish-brown clay.

This feature, No. 18, was a cache pit. It was cored and measurements were taken.

Top diameter: 36 inches
Bottom diameter: 42 inches
Depth: 36 inches

The floor of the cache slanted downward toward the center. The walls belled out as they rose from the floor and then curved inward until they reached a point 14 inches from the top, where they flared outward to the mouth of the cache.

Cultural material recovered from the cache consisted of 59 potsherds, 6 scrapers, 3 fragments of sandstone abraders, 5 broken scapula hoes, worked bison-scapula fragments, and numerous bone fragments. Charcoal specks were plentiful throughout the dirt fill in the cache.

Excavation of test pit 10 resulted in uncovering a disturbed area containing cultural material but lacking any outline until a depth of 26 inches below the surface was reached. At this depth a circular outline became apparent. Soil within the circle was darker but no less hard than the surrounding earth. This feature, No. 14, proved to be a cache pit that had had its upper portion destroyed. The base of the cache was located 33 inches below the surface. It was the only portion of the structure remaining intact. The base was circular, sloping down slightly toward the center, and had a diameter of 4 feet 6 inches. Two bison-scapula hoes were lying directly on the floor near the center.

From the irregularly defined, disturbed area in test square 10 down to the base of the cache pit, a considerable amount of cultural detritus was recovered. The fill contained 21 potsherds, 2 bison-scapula hoes, 44 bone fragments, 6 stone scrapers, 3 utilized stone flakes, and 26 unmodified flint chips.

A cache pit, designated Feature 17, was located while scraping the soil in test square 12. A poorly defined area, containing cultural material, appeared at 10 inches below the surface. At a depth of 18 inches, a definite circular outline of a cache pit was apparent. The fill was excavated, and measurements of the cache were taken.

Top diameter: 36 inches
Bottom diameter: 36 inches
Depth: 24 inches

The floor of the cache was flat, joining the walls at a rather sharp angle. The walls were almost vertical, with a very slight bulge. The cache contained 56 potsherds, 1 piece of clay, a bison skull, and numerous bone fragments. It also contained 1 scapula hoe, 6 flint scrapers, a piece of quartzite, 9 stone flakes, and a piece of hematite. Ash, burned limestone, and charcoal were scattered throughout.

At a depth of 10 inches, a dark, circular discoloration containing burned earth and charcoal appeared in test square 13. This feature, No. 19, was designated a cache pit. In order to obtain a clear picture of its form, the cache was cross-sectioned, photographed, and then cored. The cache measurements were recorded.

Top diameter: 39 inches
Bottom diameter: 42 inches
Maximum depth: 40 inches

Midway up one side of the cache there was a deep indentation and a thick concentration of ash, charcoal, and burned earth, indicating a fireplace within the pit, presumably after it began to be filled with refuse. The other wall of the cache curved gently inward toward the mouth. The floor of the cache was slightly concave.

The cache contained 25 potsherds, 6 stone scrapers, a fragment of a catlinite pipe, 5 stone flakes, 14 pieces of bone, 2 bone-awl fragments, and 1 scapula hoe. The fill was intermixed with charcoal, burned earth, and limestone.

*Excavation Unit 1.*—A trench 10 feet north–south and 40 feet east–west was excavated along the summit of the ridge at the site. It was divided into 5 x 5-foot squares, and each square was given a designation according to its location on a grid, oriented on the cardinal points.

In the excavation unit little of cultural significance was recovered below the plow zone. All the squares were excavated down to a depth of 24 inches. The single feature within the trench was a cache pit located in square North 100 East 35. At 12 inches below the surface a circular area of soft, dark soil was noted. Upon further investigation the feature, No. 20, was found to be a cache pit with a fireplace near the top. While the fill was being removed, a solid layer of burned earth and ash was located about 18 inches within the cache. Mixed with the ash was a concentration of crushed bone. The cache was cored and measured.

Top diameter: 45 inches
Bottom diameter: 51 inches
Maximum depth: 31 inches

The floor was slightly concave, joining the walls at a gentle angle. One wall curved inward toward the mouth at a 10° angle. The opposite side was vertical midway up the cache, then curved sharply inward.

The cache contained 57 potsherds, 17 stone flakes, 8 scrapers, 1 grinding-slab fragment, 1 whole piece and several fragments of worked scapulae, 1 worked bison ulna, 1 grainer, a fragment of human mandible, specks of shell, and pieces of charred wood· The contents were intermixed with burned earth, ash, and charcoal. The single complete scapula hoe was lying on the floor of the cache.

## ARTIFACTS

### POTTERY

The pottery count included 138 rims, 3,957 body sherds, and 7 appendages. These may readily be put into three groups for purposes of description. One partially reconstructed vessel is composed of nine sherds (pl. 50, *a*).

#### GROUP 1

Walnut Decorated Lip. 113 rim sherds, 3,801 body sherds, and 2 appendages (pl. 50, *a* through *t*).

PASTE:

*Temper:* Moderate amounts of medium to coarse-grained sand.

*Texture:* Granular. Sherds tend to crumble and surfaces rub off easily.

*Hardness:* Most sherds have the hardness of 3 (calcite).

*Color:* Buff to gray, buff predominating. A few sherds are bright orange, probably the result of overfiring. Some of the sherds are slate-black; they may have been thrown into a fire after the parent vessels were broken.

SURFACE FINISH:

*Interior:* Usually smooth. On a few sherds grains of sand protrude.

*Exterior:* 1,801 body sherds are large enough to show surface treatment. These have been simple-stamped, and then the paddle marks were partially eradicated while the clay was still soft.

DECORATION:

*Techniques:* Impressions made with a cylindrical object, usually 2 to 4 mm. in diameter; incised lines made with a pointed object; trailed lines made with a blunt tool; impressions made with a finger or thumb. All of these techniques employed while the clay was still soft.

*Pattern:* A single row of finger or tool impressions around the lip or on the rim interior at the lip; parallel incised or trailed lines; opposing diagonal or opposed horizontal and vertical lines, incised or trailed. Of 120 body sherds decorated with two or more parallel lines, 55 are decorated with incised lines and 65 are decorated with trailed lines. There are 55 body sherds decorated with opposing diagonal or opposing horizontal and vertical lines; 38 of these are incised and 15 have trailed lines. There are 12 body sherds decorated with parallel lines and punctations.

*Distribution:* All vessels are decorated on the lip or on the rim interior at the lip. Rims of all vessels are plain.

FORM:

*Lip:* Rounded on 67 sherds, flat on 26, and slightly beveled outward on 10.

*Rim:* 31 sherds slightly flaring; 18 are straight. The other rim specimens are too small to determine their form.

*Neck:* Constricted on all identifiable sherds.

*Shoulder:* The juncture of the rim and the shoulder is quite angular. The shoulder extends out from the rim at about 45° from the vertical. The junction of the body and the shoulder is also quite angular.

*Appendages:* 1 lug and 1 strap handle. Both are small and appear to have been broken from small vessels.

DIMENSIONS:

*Rim height:* Ranges from 15 to 37 mm.

*Thickness:* Ranges from 3 to 7 mm. Most of the body sherds are about 5 mm. thick. Rim sherds range from 4 to 9 mm.

The following is a description of the sherds which are similar to Oneota pottery. These sherds were intermixed with all other specimens found on the surface and in the excavations.

### GROUP 2

15 rims, 133 body sherds, 4 appendages (pl. 51, *a* through *j*).

PASTE:

*Temper:* Fine to coarse ground shell.

*Texture:* Surface is chalky and often pitted.

*Hardness:* From 2 (gypsum) to 3 (calcite).

*Color:* Buff to slate-gray; a few are orange-brown.

SURFACE:

*Interior:* Smoothed, but irregularities, possibly caused by finger impressions, are common.

*Exterior:* Body sherds appear to have been simple-stamped originally, and then smoothed.

DECORATION:

*Techniques:* Incised lines made with a pointed object; trailed lines made with a blunt tool; punctations made with a cylindrical object.

*Pattern:* Punctations on the lip; blunt tool impressions placed diagonally on the rim interior at the lip. There are 16 body sherds decorated with opposing diagonal or opposing horizontal and vertical lines. Of these, 8 are decorated with incised lines; the remainder have trailed lines. There are 5 body sherds decorated with parallel trailed lines, but they are too small to indicate any pattern. One body sherd is decorated with horizontally trailed lines and a single circular thumb impression.

*Distribution:* Decoration on the lip or on the rim interior at the lip. Rim exteriors are plain.

FORM:

*Lip:* Rounded on 6 sherds; flat on 4; slightly beveled outward on 2 of the rims.

*Rim:* 7 of the rims are flaring; 5 of the rims are straight.

*Neck:* Constricted on all identifiable sherds.

*Shoulder:* On 3 measurable sherds the shoulder extends outward from the rim at angles between 45° and 70° from the vertical.

*Appendages:* 3 strap handles are attached to rims. Two of the handles flare out at their junction with the lip. One of the handles has 5 parallel trailed lines extending down its exterior, stopping at the junction of the handle and the shoulder. Two of the specimens have been broken from the rest of the vessel. They are slightly round in cross section and plain on their exterior surfaces. One of these handles flares out at one end.

DIMENSIONS:

*Rim height:* Ranges from 17 to 29 mm.

*Thickness:* Body sherds from 3 to 8 mm. Usually about 4 mm. Rim sherds range in thickness from 4 to 8 mm.

### GROUP 3

*Miscellaneous sherds:* 10 rims and 23 body sherds.

Three rim sherds, sand-tempered, buff to gray in color. The lip on each of these sherds has been impressed, causing a slight extrusion. The rims are straight in form. Thickness ranges from 3 to 5 mm., and height from 36 to 41 mm.

Three rim sherds, sand-tempered, buff to dark gray in color. The rims curve slightly inward, and the lips are beveled inward. One of the rims has a single incised line running the length of the rim near the top of the lip. The incision has been partially smoothed over in one section. Another of the rims has two small punctations near its base. The sherds range in thickness from 6 to 9 mm. and in height from 24 to 43 mm.

Three small rims, sand-tempered, orange to dark gray in color. Two of the rims are plain, but the third has two parallel trailed impressions running down the rim. All the rims are straight and have rounded lips. They range from 4 to 6 mm. in thickness.

One rim, which is sand-tempered and buff in color, is decorated with four horizontal trailed lines. It is straight and has a flattened lip. It is 29 mm. in height and 6 mm. thick. This sherd was located on the surface (pl. 51, *k*).

Eight body sherds, shell-tempered, light gray in color, ranging from 4 to 9 mm. in thickness. The exterior surfaces are cord-roughened. All were found on the surface.

One small body sherd, sand-tempered and orange in color, is 6 mm. thick. The exterior is decorated with cord impressions. It was located on the surface.

Thirteen body sherds, sand-tempered, from buff to gray in color, range from 5 to 10 mm. in thickness. The exterior surfaces are cord-roughened. All were located on the surface.

One body sherd, shell-tempered, buff in color, is 7 mm. thick. The exterior surface appears to have been brushed. Located on the surface.

## STONE

Projectile points: 23 identifiable specimens; also 7 tip sections and 2 body fragments.

*Group 1:* 11 specimens. Triangular; straight bases and straight to slightly convex sides (pl. 52, *a*, *b*, and *c*).

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* | *Weight, gm.* |
|---|---|---|---|---|
| *Range:* | 18–36 | 12–21 | 2–5 | 0.5–3.0 |

*Group 2:* 5 specimens, 2 complete. Triangular; concave base; straight to slightly convex sides (pl. 52, *e* and *f*).

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* | *Weight, gm.* |
|---|---|---|---|---|
| *Range:* | 11–29 | 11–15 | 2–3 | 1.1–2.0 |

*Group 3:* 4 specimens. Triangular; straight base; 2 side notches (pl. 52, *j* and *k*).

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* | *Weight, gm.* |
|---|---|---|---|---|
| *Range:* | 16–30 | 11–21 | 1–4 | 0.5–3.1 |

*Group 4:* 3 specimens complete except for tips. Triangular; concave base; 2 side notches (pl. 52, *m*, *n*, and *o*).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* | *Weight, gm.* |
|---|---|---|---|
| 16 | 12 | 2 | 0.5 |
| 14 | 13 | 2 | 0.4 |
| 23 | 12 | 1.5 | 0.5 |

*Group 5:* 1 specimen. Triangular; convex sides; 2 side notches; concave base (pl. 52, *l*).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* | *Weight, gm.* |
|---|---|---|---|
| 34 | 16 | 4 | 3 |

Drills: 4 specimens. Working ends are narrow, tapered and slightly curved. Three of the drills have a distinct side notch on one face near the tip (pl. 55, *b* and *c*). One of the edges has been pressure-flaked from the base to the tip. One of the larger specimens is triangular in shape. It has careful pressure-flaking along one side and along the edge opposite the point. This tool may have been a combination scraper and drill (pl. 55, *a*).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|
| 31 | 20 | 6 |
| 31 | 18 | 6 |
| 56 | 57 | 8 |
| 59 | 54 | 7 |

Knives: 69 specimens.

*Group 1:* 23 specimens. Small fragments of bifacially worked stone. Usually percussion-flaked on the faces and pressure-flaked along the edges. Made from chert and jasper.

*Group 2:* 26 specimens. One complete piece, slightly diamond-shaped. One edge is beveled almost the entire length of the blade. There is fine pressure-flaking along all edges and large bifacial percussion flaking. This specimen measures 105 mm. in length, 34 mm. in width, and 7.5 mm. in thickness (pl. 53, *c*). Another specimen, lacking a small portion of the tip, is beveled by the removal of flakes from alternate edges, and displays large percussion flake scars on both faces. It has a maximum width of 39 mm. and a length of about 125.5 mm. It is 7.5 mm. thick (pl. 53, *d*). The remainder of this group consists of small fragments of chert and jasper blades that show beveling on alternate edges.

*Group 3:* 11 specimens. End fragments, slightly convex-sided with straight to rounded ends. The specimens have some pressure-flaking along the edges and large bifacial scare (pl. 53, *a*, *b*).

*Group 4:* 7 specimens. These consist of blade midsections. Four are flaked along one edge only, the others are worked on both edges. They are large chert and jasper fragments.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 56–131 | 36–78 | 8–12 |

*Group 5:* 2 specimens. Rather ovoid fragments showing crude pressure-flaking along the edges. Each has a travertine coating on both faces.

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|
| 89 | 76 | 11 |
| 99 | 63 | 12 |

Scrapers: 409 specimens.

*Group 1:* 91 specimens. Irregular-shaped pieces, all showing a semicircular notch chipped into one portion of the edge. Generally there is secondary flaking along other sections of the edge. The majority are of chert and jasper; 1 specimen is of Bijou Hills Flint (pl. 54, *a*, *b*, *c*).

*Group 2:* 77 specimens. End scrapers, triangular in cross section and ovoid to rectangular in form. There is fine pressure-flaking around the front and two sides, sometimes along the edge opposite the beveled end (pl. 54, *i*, *l*).

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 22–76 | 10–38 | 5–18 |
| *Median:* | 53 | 26 | 11 |

Scrapers: 409 specimens—Continued

*Group 3:* 51 specimens. Similar to Group 2 except that the upper surface has been flattened by removal of one or more large flakes. The flake scars usually extend the entire length of the scraper. There is usually fine pressure-flaking along three edges (pl. 54, *m*, *n*, *o*).

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 24–107 | 16–40 | 5–13 |
| *Median:* | 45 | 24 | 7 |

*Group 4:* 21 specimens. Medium-sized, irregular-shaped flakes showing fine pressure-flaking along two edges, but each edge has been worked from the opposite face. Made of chert and jasper.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 33–53 | 23–49 | 3–9 |

*Group 5:* 75 specimens. Flakes of irregular shapes that have been converted for use by the removal of fine chips along one edge. These tools appear to have been fashioned from discarded flakes.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 25–103 | 14–56 | 2–16 |

*Group 6:* 93 specimens. Irregular-shaped pieces that show fine pressure-flaking along the greater part of their perimeter. Made of chert and jasper.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 16–85 | 19–53 | 3–16 |

*Group 7:* 1 specimen. A large jasper flake, planoconvex in cross section and rectangular in form. There is fine pressure-flaking along the edges of one long side and one end. Crude percussion-flaking is present along the opposite sides. Large flake scars exist on the convex face. Corners are slightly rounded (pl. 53, *f*).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|
| 130 | 68 | 29 |

Choppers: 11 specimens: 3 complete pieces and 8 fragments. One specimen is ovoid in form; 103 mm. long, 81 mm. wide, and 24 mm. thick. Large flakes have been removed from both faces, and there is smaller and more carefully placed flaking along the edges (pl. 53, *j*). The 2 other choppers are complete except that a small portion of 1 has been broken off. These are more trianguloid in shape. They are chipped in a manner similar to the specimens described above (pl. 53, *i*).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|
| 121 | 79 | 23 |
| 102 | 47 | 25 |

The remainder of this group consists of chert and jasper fragments with large crude flake scars on the faces and smaller, more precise chipping along the edges.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 66–135 | 44–85 | 16–27 |

Chipped celts: 2 specimens. Large flakes have been removed from both faces. Chipping is finer and more precise along the edges. Each has converging sides and convex edges. One end on each of the specimens is more pointed than the other. Located in a small pocket cache within a larger bell-shaped cache pit (pl. 53, *g*, *h*).

| *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|
| 199 | 83 | 23 |
| 178 | 92 | 26 |

Modified flakes: 156 specimens.

*Group 1:* 18 specimens. Large irregular shaped flakes with random bifacial chipping. The majority have sharp edges and show evidence of wear. It is probable that these were used and saved, later to be made into more definite implements.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 71–183 | 34–97 | 7–27 |

*Group 2:* 11 specimens. Same as Group 1 except that these show more careful percussion-flaking near the edges.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 49–84 | 29–50 | 9–25 |

*Group 3:* 127 specimens. Irregularly shaped flakes, usually longer than they are wide. They are unmodified except for an occasional small area of secondary chipping. The specimens that display sharp edges usually show signs of wear. These are roughly hewn implements in the process of manufacture, or possibly raw material brought into the village for future use. The vast majority of these flakes were scattered over the surface of the site.

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 16–70 | 9–61 | 3–17 |

Arrowshaft smoothers: 12 specimens. The majority of the specimens are sandstone fragments with a groove running down the long axis. They are generally round to ovoid in cross section (pl. 55, *e*).

| | *Length, mm.* | *Width, mm.* | *Thickness, mm.* |
|---|---|---|---|
| *Range:* | 18–53 | 18–37 | 14–21 |

Sharpening stones: 11 specimens. Irregular pieces of sandstone with random grooves on one or more faces. Some of the fragments have edges worn smooth from rubbing. Two of the specimens have stains of hematite embedded between the sandstone grains. One has stains on 2 faces, and the other on 1 face.

Stone ball: 1 specimen. A piece of Niobrara Chalk that appears to have been fired. It is reddish in color and spherical in shape. The greater part of the surface of the ball has been smoothed. The specimen was found in a cache pit. Diameter 37 mm. (pl. 55, *d*).

Blanks: 37 specimens. Large and medium-sized pieces of chert, jasper, chalcedony, and quartz. All display percussion-flaking. None appears to have been used. Probably brought into the village as raw material.

Mealing stone: One face is smooth and concave; the opposite or bottom is smooth and convex. The fragment has one rather flat end that may have been used for pounding. It measures 188 mm. long, 102 mm. wide, and 68 mm. thick. Made of feldspathic granite.

Pipe: 1 specimen, a fragment of a catlinite pipe bowl. The lip is rounded and the side of the bowl is slightly convex. It is 24 mm. in height, 17 mm. in diameter, and 5 mm. thick. The specimen was located on the surface directly above a cache pit (pl. 55, *h*).

### ORNAMENTS

A fragment of belemnite that has a groove worn into it 4 mm. from one end. The specimen appears to have been broken in half when an attempt was made to drill a hole down through its long axis. It is 18 mm. long and 7 mm. in diameter.

### BONE

Bison scapulae: 53 specimens.

*Group 1:* 6 specimens. Fractured at the vertebral end. Spines and posterior borders removed.

*Group 2:* 4 specimens. Scapulae with part of the glenoid cavity removed.

*Group 3:* 15 specimens. Scapulae with smoothed and worn areas around the neck (pl. 56, *g*). Presumably from rubbing of a handle.

*Group 4:* 28 specimens. Identifiable fragments of bison scapulae. Worn and smoothed areas exist on 22 of the specimens (pl. 56, *f*).

Picks: 4 specimens. Made from the proximal section of bison ulnae. The shaft portion has been broken and worn to a dull point. The olecranon is present on all but 1 of these specimens (pl. 56, *e*).

Awls: 3 specimens. Made from a portion of rib. On one, the bone is rounded off at the distal end and displays some random scratches. It is 40 mm. long. On another, only the middle section is present. The piece is smooth and worn from use and also displays some random scratches and incisions. It is 49 mm. long. The third awl is complete except that a small piece of the tip is lacking. The butt has been rounded, and the cancellous tissue is smoothed. It is 98 mm. long.

Toothed flesher: 1 specimen. Made by cutting the metatarsal of a bison diagonally to form a chisel edge. The working end has 6 transverse incisions which serrate this edge. The proximal end of the bone has been left intact. The tool is 165 mm. long (pl. 56, *c*).

Hide grainers: 3 specimens. Made from bison condyles. The tools show worn and flattened surfaces on the cancellous tissue of the bone (pl. 56, *d*).

Paddles: 2 specimens. Both made from the dorsal spines of bison vertabrae. One specimen has crossed diagonal incisions on the distal portion of 1 face of the spine. Seen from the handle portion of the paddle, there are 6 grooves crossing the spine from the upper left to the lower right and 7 grooves crossing from the lower left to the upper right. The pattern of these incisions forms a number of rhombuses whose longer diagonals average about 21.5 mm., while the shorter diagonals average about 14 mm. There are some random scratches on the edge of the paddle.

The other paddle has 8 prominent grooves extending across the spine on one face. Small, shallow incisions exist on each side of the 8 major grooves. The large grooves are spaced about 11.1 mm. apart. The proximal portion of the paddle was fractured and then worn smooth. The specimen is 336 mm. long and 66 mm. wide. Both paddles were located in a single cache pit (pl. 56, *a*, *b*).

Miscellaneous bone artifacts: 2 fragments of bison rib, having worn and smoothed areas; 2 unidentifiable fragments of bison bone, smoothed and worn; 1 fragment of bison (?) rib, with a groove extending across one side; 1 small, disk-shaped piece of carapace, 1 mm. thick and 12 mm. in diameter.

### ANTLER

One section of deer (?) antler was recovered. It has been cut sharply at the proximal end, and the tip has been broken off. It shows a few areas that appear to have been smoothed from use.

### SHELL

One fragment of mussel shell was recovered from the surface. Pieces of shell were located in cache pits, but they were too fragmentary to preserve.

### HUMAN REMAINS

One section from the left side of a mandible was recovered. The condyle has been broken off just below the neck, and a portion of the angle is missing. The mandible is fractured just in front of the mental foramen. Three molars are present in the bone; the first and second are quite flat on the top surfaces. This specimen was recovered from a cache pit. One small fragment of cranium was located in another cache at the site. No unnatural markings or scratches are present on the specimens.

### SUMMARY

The data from the Warne site indicate that it is a component of the Glen Elder Focus of the White Rock Aspect. The main pottery type is Walnut Decorated Lip. A second ware, Group B, is represented, but in a small percentage—3.6 percent. A total of 33 miscellaneous sherds were recovered from the surface, but apparently they are not associated with the main occupation of the site.

The economy of the White Rock people seems to have been based upon hunting, supplemented by primitive horticulture. Hide-working tools, such as stone scrapers and knives, were most common. The serrated bone flesher and hide grainers were also employed in this industry. Cache pits, scapula hoes, and corn kernels give testimony to the presence of agriculture. Most certainly the people hunted and gathered the local biota during their occupancy of the village.

Evidence of habitations is lacking. Possibly the people built structures using light poles covered with brush or skins, as did many of the historic tribes. Neither human burials nor a burial area was located, but two specimens of human bone were recovered from the refuse pits.

It appears that this village was occupied for a short duration, or at intervals, by a culture whose economy depended upon agriculture and hunting. The site was occupied between hunts, during which periods the people planted and harvested from garden plots probably situated in the creek bottoms.

## DISCUSSION OF THE WHITE ROCK, INTERMILL, AND WARNE SITES

It will be seen that the White Rock, Warne, and Intermill sites have a great majority of like traits. They are all located within a 3-mile area along White Rock Creek. Two of the sites, White Rock and Warne, are situated on the tops of flat ridges overlooking the north side of the creek. The Intermill site lies on the first terrace in the valley bottoms on the south side of the creek. Although each site is rather extensive, there is a general lack of depth to the cultural deposits. Little in the way of cultural material was recovered below the plow zone, except in the case of storage caches or firepits.

From the excavations conducted, it is impossible to demonstrate any architectural tradition. Two features were designated as house structures at the White Rock site, but conclusive evidence is lacking in both instances. At the Intermill site, Excavation Unit 1 revealed an area 20 by 40 feet containing 162 small postmolds. These were randomly distributed and divulged little regarding their function.

Fire or roasting pits were located at all the sites. The pits were generally shallow, not exceeding 1 foot in depth, and basin-shaped. They contained charcoal, ash, and camp refuse. The majority of these features were located at the White Rock site. The other two sites revealed one pit each. Storage caches were excavated at the White Rock and Warne sites. All the caches at the White Rock site were bell-shaped. Those at the Warne site were widest in diameter at the bottom, but their overall shapes varied considerably. Four of the pits had slightly convex sides, one had concave sides, and two were straight-sided. All had flat to slightly convex or concave bottoms, except Feature 13, which had an irregular base with a high ridge extending across the center. The pits contained a mixture of charcoal, ash, burned earth, and fragmentary remains of artifacts. Only occasionally was an unbroken specimen recovered from the fill.

Pottery from the three sites is approximately the same, Walnut Decorated Lip being the dominant type. Owing to a characteristic of the pottery to break into minute pieces, many of the sherds were too small for positive identification. The majority of the body sherds have been simple-stamped and then smoothed. Necks of all the vessels are plain, but all vessels are decorated on the lip or on the rim interior at the lip. The same decorative pattern of two or more parallel trailed lines on the shoulder area appears most frequently at all the sites. One lug and two strap handles were recovered, but they appear to belong to miniature vessels.

A second group of pottery has been designated Group B. These sherds are shell-tempered and similar to Oneota pottery. A total of 18 rims, 145 body sherds, and 4 appendages is represented. The majority of these sherds, 15 rim sherds and 133 body sherds, were recovered from the Warne site. The form and decorative techniques are closely allied to those appearing with Walnut Decorated Lip pottery. Eleven rims and twenty-six body sherds collected from the surface at 14JW2 and 14JW202 have been classified as Miscellaneous. They are intrusive and do not seem to have a bearing on the main occupation of the villages.

Artifacts of stone were not numerous at any of the sites. The majority were collected from the surface. At least five of the test squares at the Warne site were dug in areas where a small, restricted concentration of cultural detritus appeared after a rain. Subsequently, these features were found to be associated with cache pits. They were probably the top sections of caches whose fill had been scattered by plowing; hence, some of the artifacts scattered on the surface were associated with structures and material exposed in situ beneath the surface. The majority of the stone tools were made of jasper, chert, and chalcedony, but specimens of granite, quartz, sandstone, Niobrara Chalk, and catlinite are also represented.

Projectile points recovered from the sites in 1956 fall into six groups. Half of the points, 23 of the total 46, are from the Warne site. It should be noted, however, that only 28 of the specimens are complete enough to warrant placement in any one of the groups. The types include triangular points with slightly concave or convex sides, straight or slightly concave or convex bases, with or without side notches.

Tools classified as scrapers comprise the largest single group of stone artifacts. The largest sample, 409 out of 553, was collected from the Warne site. They fall into four general types: Irregularly shaped flakes displaying secondary chipping and a semicircular notch along one portion of the edge, keeled end scrapers, end scrapers with the keel removed, and flakes converted to use by the removal of a few chips along the edges. Group 4 from the Warne site appears to be rather distinctive in that the specimens have been flaked along two edges, but the edges have been worked from opposite faces.

A total of 93 pieces were classified as knives. The majority are irregularly shaped fragments with bifacial percussion-flaking. Two "Harahey" type blades, Group 2, were found at the Warne site. Twenty-seven fragments display beveling on alternate edges. One triangular-shaped knife with straight sides and a straight base was recovered from the White Rock site.

Implements of ground or polished stone were relatively rare. Sandstone arrowshaft smoothers with a groove extending down the long axis were found at the Warne and White Rock sites. Represented at all the sites were less definitely shaped specimens of sandstone, designated sharpening stones, generally with one or more random grooves on the faces. Only four mealing stones were recovered, three from the Intermill site and the fourth from the Warne site. They are large fragments of quartz and limestone with smoothed, slightly concave faces and rough and irregular sides.

A section of the bowl from a catlinite pipe was recovered from the surface at the Warne site. Two specimens of catlinite pipes were located at the Glen Elder site (14ML1) a fourth component of the Glen Elder Focus. One piece is described as "a tiny elbow pipe made of catlinite. One side of the bowl and stem is decorated with an incised geometric design. The other side is plain" (Rusco, 1960). The other specimen is a bowl fragment, rectangular in cross section.

Bone artifacts are present at two of the sites. The lack of bone at the Intermill site may be the result of flooding. Also, it should be noted that, although numerous surface surveys were conducted over the entire site, only a small area was actually excavated. Bone artifacts were totally absent from the White Rock site in 1956; however, numerous specimens were collected during excavations in 1937 (Rusco, 1960).

The buffalo contributed the largest portion of the osseous remains. Bison-scapula hoes were the most common bone artifact. The majority of the more complete pieces at the Warne site were found lying on the floors of cache pits. Numerous fragments of bison scapulae, 28 from the White Rock site (Rusco, 1960), and 22, Group 4, from the Warne site, displayed edges worn smooth from use.

Four specimens are classified as awls. They are fragments of rib sections, generally rounded off on the butt and ground or worn smooth across the cancellous tissue on the face. One piece, a rib edge, is triangular in cross section.

Tools manufactured from bison ulnae were collected at the Warne site. They have the head intact and taper down to a dull point along the shaft. The proximal portion of the bone provides a suitable handle, and evidence of wear is visible near the point. These pieces may have been used as awls (Kidder, 1932), but judging from the dullness of the points it seems more probable that they were "dibble" implements in agricultural operations. Similar specimens were recovered from the Leary site in southeastern Nebraska (Hill and Wedel, 1936) and also at the Lynch site in the northeastern part of the state (Freed, MS., 1954).

Four bone implements associated with hide-working were located at the Warne site. Three bison condyles, all found in cache fill, have worn surfaces on the cancellous tissue. These may have been used as hide tanners. One flesher with a serrated edge, manufactured from a bison metatarsal, was also recovered from a cache pit.

Two interesting artifacts are the bone paddles found lying side by side in a cache pit at the Warne site. They are made from the dorsal spine of bison vertebrae. One specimen has crossed diagonal incisions, and the other has parallel incisions extending across the face of the spine. In both cases the markings are at the distal end of the bone and on one side only. Similar implements have been illustrated from the Burkett site in Nebraska (Wedel and Hill, 1943) and the Arzberger site in South Dakota (Spaulding, 1956). Ethnographic data concerning the use of this type of tool in manufacture of pottery are in agreement with previous archeological assertions (Newman, 1955). Although Walnut Decorated Lip and Group B ceramics do not readily show ridges and grooves, evidence of simple stamping is apparent upon close examination.

Ornaments and gaming devices were few in number and found at only two of the sites. At the Intermill site a tubular copper bead was located in the plowed soil. However, the majority of the camp materials were collected from this soil layer; hence it seems plausible that the bead may be associated with the other cultural remains. Copper ornaments and beads of this type were also found at Oneota sites (Hill and Wedel, 1936; and Berry and Chapman, 1942). A small fragment of belemnite was recovered from cache fill at the Warne site. A worn groove at one end of the object suggests an attempt to manufacture a bead or pendant. One small stone ball made of Niobrara Chalk, probably obtained from the local outcrops, was located in a cache at the same site. The ball measures about 1.5 inches in diameter and has a fairly smooth surface.

Shell was extremely rare at all the sites. A few fragments were located in the cache fills, but these were too small for identification. Worked shell was totally absent. One section of antler displaying a few worn surfaces was recovered from the Warne site.

Five specimens of glass were found at the Intermill site. One piece, recovered from the surface, has fine pressure flaking along one of the edges. Its relationship to the main occupation site is uncertain.

Objects of iron were located on the surface and within the plow zone at the Intermill site. Apparently all these pieces are associated with White settlement in the area.

The only evidence of human skeletal remains was uncovered at the Warne site. One section of a mandible and a fragment of cranium, neither of which had been worked, were found in separate cache pits. I was told of an extended "Indian" burial that was disturbed by a road crew during construction of the new Highway 14, which bisects the Warne site. Numerous surveys were made over the area of the supposed burial ground, but nothing was located.

Vegetal specimens generally consisted of charred corn kernels. In almost all instances, the remains were recovered from features such as postmolds or cache pits. At the Warne site charred grass fragments and what "may be bone marrow or dried meat fibers" (Nickerson, personal communication) were collected. From the Intermill site five of the charred corn kernels are identified as being "predominantly of the southwestern type" (Nickerson, personal communication).

Faunal remains from the sites consisted almost entirely of bison bone. Specimens recovered at the White Rock site in 1956 were all from the buffalo and located in a cache pit. A singular fragment of cottontail rabbit was collected from the surface at the Intermill site. Bison remains were quite numerous at the Warne site, and almost without exception were recovered from storage caches. Canid bones are represented but are not plentiful. The majority were found in two separate caches. A fragment of turtle carapace was also recovered from a cache. Six horse teeth were collected on the surface, but owing to their provenience and the total lack of any other horse remains, their presence seems intrusive.

From the summary of the traits reviewed, there can be little doubt that the inhabitants of these sites experienced a similar way of life. The specific traits of this material culture allow us to assign them to the Glen Elder Focus, White Rock Aspect. One other component of this focus is the Glen Elder site, 14ML1 (Rusco, 1960). Archeological evidence suggests that the behavior of these people was patterned after a semisedentary organization. Theirs was an existence derived partially from agricultural production while occupying the villages and partially from hunting the buffalo and gathering wild foods during periods of wandering.

There is also considerable evidence of contact with other peoples. At this point comparisons will be made between the peoples of the Glen Elder Focus and their contemporaries. Sites 25HN39 and 25HN45 comprise the Blue Stone Focus, White Rock Aspect (Cummings, 1953). These sites are located approximately 80 miles west-northwest of the Lovewell Reservoir.[2] The Blue Stone and Glen Elder Foci have been compared in a detailed trait list (Rusco, 1960), and a preponderant number of similarities have been demonstrated. It will suffice here to mention that the pottery type Walnut Decorated Lip was the predominant ware, and the artifact inventories were almost identical.

The Boyd Flared Rim variety of Lynch Ware, recovered at the Lynch site (25BD1) in northeastern Nebraska, displays a number of attributes in common with Walnut Decorated Lip pottery. The bone and stone artifact assemblage is also quite similar. Oneota pottery was recovered at the Lynch site and one of the other two sites of the Boyd Focus (Freed, MS., 1954). Other superficially analogous features may be noted. Both the Glen Elder and Boyd Foci have sites with thin, but areally extensive, cultural deposits; there is a lack of definite evidence regarding habitations; cache pits of a variety of shapes occur sporadically; and lastly, human burials or burial areas have been absent in the investigations reported up to this time. Incidental consideration may be given to the fact that a bison skull was recovered from a storage cache at the Warne site; an identical situation occurred at the Lynch site (25BD1).

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[2] Since the completion of this report I have been notified by John L. Champe of the Laboratory of Anthropology, University of Nebraska, that a wood specimen from 25HN45 has been dendrochronologically dated at A.D. 1614.

Similarities have been noted between Walnut Decorated Lip and Evans Ware from Redbird Focus sites in northeastern Nebraska (Wood, MS., 1956). Both ceramics have identical surface treatments on the bodies and similar decorative patterns on the shoulders. Likenesses also exist between the shapes of the vessels and the presence of loop and strap handles. However, Wood summarizes the comparison by stating that they "share a number of general characteristics, but they differ enough that they may be distinguished from one another and do not appear to be closely related."

Oneota manifestations appear in many of the traits of the Glen Elder Focus. The shell-tempered pottery is similar to ceramics from the Leary site and Component B at the Ashland site. The sherds are regarded as "marginal" Oneota by Chapman (personal communication) when compared to those from the Utz site in Saline County, Mo. There are a number of likenesses between Walnut Decorated Lip and Oneota pottery from the above-mentioned sites. The resemblances are especially noteworthy in regard to form, body treatment, and decorative patterns. Oneota influences are further indicated in the nonceramic elements of the Glen Elder Focus. Parallels may be seen in the collections of chipped and ground stone and also in the bone-tool assemblages and the general lack of shell. Articles of White manufacture have been reported from sites of the White Rock and Oneota Aspects. Similarities in the general village pattern include the utilization of extensive areas, lack of fortifications, absence of conclusive evidence concerning habitations (except at the Leary site), and abundance of refuse pits. If the Oneota culture is of Siouan origin, and it seems wholly plausible from past investigations (Mott, 1938; Griffin, 1937; and Berry and Chapman, 1942), it can be assumed that the people of the Glen Elder Focus had relationships with these Siouans and were decidedly influenced by them. This fact, plus the presence of simple-stamped pottery, places the Glen Elder Focus, White Rock Aspect, in the Late Ceramic Period (Champe, 1946) of the Central Plains. A date not later than 1700 A. D. is suggested for the occupancy of the sites.

TABLE 1.—*A trait list of the Glen Elder Focus sites*

(x indicates the presence of a trait.)

| Traits | Warne 14JW2 | White Rock 14JW1 | Intermill 14JW202 | Glen Elder 14ML1 |
|---|---|---|---|---|
| Occupational features: | | | | |
| Villages concentrated on ridge tops and/or close to streams | x | x | x | x |
| Areally extensive, but shallow cultural deposits | x | x | x | x |
| Habitations or structures | — | x | x | x |
| Multishaped cache pits | x | x | — | x |
| Basin-shaped refuse pits | — | x | — | x |
| Poorly defined firepits | x | — | x | x |
| Human burials | — | — | — | — |
| Pottery: | | | | |
| Walnut Decorated Lip | x | x | x | x |
| Small percentage of shell-tempered pottery | x | x | x | x |
| Stone: | | | | |
| Projectile points: | | | | |
| Triangular, straight base | x | x | x | x |
| Triangular, concave base | x | x | — | x |
| Triangular, straight base, two side notches | x | — | — | — |
| Triangular, concave base, two side notches | x | x | — | x |
| Expanded base drills | x | — | — | — |
| Knives: | | | | |
| Irregular-shaped, bifacially flaked | x | x | x | x |
| Diamond-shaped, alternately beveled | x | — | — | x |
| Scrapers: | | | | |
| Irregular-shaped, notched | x | x | x | x |
| End scrapers, keeled | x | x | x | x |
| End scrapers, keel removed | x | x | x | x |
| Irregular-shaped retouched flakes | x | x | x | x |
| Choppers | x | — | — | x |
| Chipped celts | x | — | — | x |
| Sandstone arrowshaft smoothers | x | x | — | x |
| Sharpening stones | x | x | x | — |
| Catlinite pipes | x | — | — | x |
| Bone: | | | | |
| Bison scapula hoes | x | x | — | x |
| Worked fragments of bison scapula | x | x | — | x |
| Bison ulna picks | x | — | — | — |
| Bison metatarsal toothed flesher | x | — | — | — |
| Bison condyle hide grainers | x | x | — | — |
| Bison dorsal spine paddles | x | — | — | — |
| Rib awls | x | — | — | x |
| Worked shell | — | x | — | x |
| Human bone | x | — | — | — |
| Objects of White origin: | | | | |
| Tubular copper bead | — | — | x | — |
| Worked glass fragment | — | — | x | — |
| Unworked faunal remains: | | | | |
| Bison | x | x | — | x |
| Deer | x | x | — | x |
| Canid | x | x | — | x |
| Turtle | x | — | — | x |
| Shell | x | x | — | x |

597967 O—63 (Face p. 294)

597967 O—63 (Face p. 294)

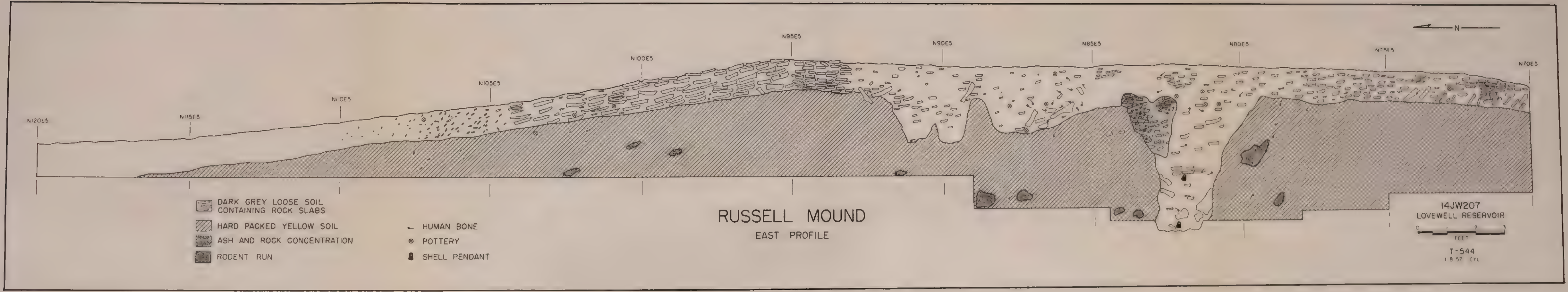

N
N95E5
N90E5
N85E5
N80E5
N75E5
N70E5
N100E5
N105E5
N110E5
N115E5
N120E5
DARK GREY LOOSE SOIL CONTAINING ROCK SLABS
HARD PACKED YELLOW SOIL
ASH AND ROCK CONCENTRATION
RODENT RUN
HUMAN BONE
POTTERY
SHELL PENDANT
RUSSELL MOUND
EAST PROFILE
14JW207
LOVEWELL RESERVOIR
0
1
2
3
FEET
T-544
1 8 57 CYL

Figure 42.—Trench cross section of Russell Mound.

## RUSSELL MOUND SITE (14JW207)

### DESCRIPTION OF THE SITE AND EXCAVATIONS

The site lies on the crest of a high escarpment situated immediately south of White Rock Creek in Jewell County, Kans. The legal designation is SW¼NW¼ sec. 10, T. 2 S., R. 7 W. This is at an elevation of approximately 1,700 feet above mean sea level. Although the mound is above the maximum pool level, it will be almost totally isolated by the flood waters of the Lovewell Reservoir (pl. 49, *a*).

The surrounding vegetation is predominantly native grasses with occasional clumps of burr oak and sumac. Outcrops of Niobrara Chalk are common on the top and along the steep slopes of the escarpment. Evidence of quarrying by early White settlers is visible a short distance north of the mound.

Excavation procedure consisted of digging a north–south trench through the center of the mound. The trench, Excavation Unit 1, was 5 feet wide and 80 feet long, and was divided into 5-foot squares. Each square was given a directional and numerical designation consistent with its placement in a north–south, east–west grid. The squares were excavated by 6-inch levels, and artifacts were cataloged according to their vertical and horizontal provenience. The mound measured approximately 75 feet north–south and 90 feet east–west. It had a maximum elevation of 2.5 feet above the surface of the surrounding area. Owing to the limited time available and evidence of disturbance by "relic hunters," excavations were not as extensive as they might have been. Only 60 feet of the trench was excavated. This amounted to removal of fill from the northern extremity to about 10 feet beyond, or south of, the center of the mound (pl. 49, *b*).

Stratigraphic evidence indicated that the mound was a natural rise composed of yellowish, compact soil containing limestone concretions. This rise was covered with a layer of artificially placed limestone slabs. The slab layer was generally about 1 foot thick and composed of rocks of varying size. The rocks seemed to be placed haphazardly, although they decreased in number and size toward the periphery and over the center of the mound. A thin layer of sod covered the entire structure (see fig. 42).

Upon completion of the trench, the west profile displayed an outline of a large basin-shaped pit dug into the natural rise. At the top it measured 16 feet north–south and had a maximum depth of 5 feet. The pit sloped upward toward the east and became quite irregular in outline, the southeast section being deep and funnel-shaped. The fill within the pit was composed of loosely packed, dark-gray soil, and limestone slabs were sparsely distributed throughout this soil zone. On the north side of the funnel outline, and about 1 foot below the mound surface, there was a concentration of almost solid ash, charcoal, and hand-sized, burned limestone rocks. This burned area was about 2 feet wide at the top and became narrower as it extended downward to a depth of 36 inches below the surface. Most of the artifacts were recovered from the limestone slab layer and/or within the funnel-shaped area. However, because of the hole dug into the center of the mound by amateurs, the association of cultural material within the fill is somewhat speculative. Luckily, only the top 3.5 feet of the funnel was disturbed.

## ARTIFACTS

### POTTERY

The ceramic collection was small. Only 5 rim sherds and 26 body sherds were recovered from the excavation, and of these, 4 rim sherds and 13 body sherds are large enough for identification. The 4 rims represent 3 different vessel types.

Two rims, apparently from the same vessel, were located just outside the periphery of the mound in the 0- to 6-inch level. They are sand-tempered; some of the particles protrude through the surfaces. The sherds are dark grayish brown in color and have a thickness of 4.5 mm. The rims are slightly flaring with flattened lips. Punctations made with a blunt tool occur at intervals of about 5 mm. on the top of the lip. These sherds are indentical to Walnut Decorated Lip pottery of the White Rock Aspect.

Another rim sherd, recovered from the 12- to 18-inch level in the center of the mound, is sand-tempered with particles averaging about 2 mm. in diameter. It is predominantly brown in color, but where scratched or freshly fractured, a bright orange core is visible. It has a hardness of 3 (calcite). The rim flares outward and has a slightly beveled lip. The inner half of the lip has been flattened and slopes downward, forming a slight ridge; the exterior portion of the lip is rounded and protrudes over onto the outside of the rim, simulating a fillet. The exterior surface of the sherd is cord-paddled. The impressions are shallow and/or partially obliterated by smoothing. They extend vertically up to the lip. The interior is irregular, but smooth. The rim has a thickness of 5 mm. and a height of 14 mm. (pl. 57, *a*).

This sherd compares closely with some pottery from the Schulte site (25CD1), located in northeastern Nebraska, resembling particularly a restored miniature vessel with a globular body. The Schulte site has been assigned to the Upper Republican Aspect (Cooper, 1936).

The fourth rim was recovered from the limestone slab matrix within the artificial pit in the 24- to 30-inch level. The sherd is tempered with grit, but it should be noted that the particles are so small and sparse that they may be regarded as natural inclusions in the clay rather than a purposeful temper. The sherd has a hardness of 4 (fluorite). The surfaces are medium to coarse in texture and appear slightly porous in cross section. The core is burned to a charcoal black. The exterior surface is grayish and shows firing clouds, while the interior is a uniform grayish brown. The exterior surface treatment consists of vertical cord-paddling, with some of the impressions partially obliterated by smoothing. They range in width from 1.5 to 2 mm. The interior surface is plain but has irregularities that appear to be finger or anvil impressions. The lip is plain and varies in form from rounded to flat; it is 3 to 3.5 mm. in thickness. The rim is incurved, with no apparent neck or shoulder areas. Below the lip the sherd ranges from 5 to 6 mm. in thickness (pl. 57, *b*).

A similar sherd was recovered from site 25DK7 in northeastern Nebraska, a village site attributable to the Upper Republican Aspect. A small globular vessel from the Dooley site (25FR3) exhibits similar traits (Strong, 1935, pl. 21, fig. 1, *b*). This site, located in Franklin County, Nebr., about 50 miles northwest of the Russell Mound, is assigned to the Upper Republican Aspect.

Twelve of the body sherds are cord-paddled on the exterior surfaces. They are grit-tempered with particles of sand and crushed quartz ranging from 1 to 2 mm. in diameter. Nine of these sherds have smoothed areas in which the cord impressions are obliterated; they show an average of about five parallel impressions per centimeter. Three sherds have fine cord-paddling with as many as eight parallel impressions per centimeter. One sherd, a neck-and-shoulder section, has vertical cord-paddling up to the juncture of the neck, where it shows horizontally brushed impressions. The sherd suggests a vessel with rounded shoulders, constricted neck, and a slightly flaring rim. Thicknesses of all the body sherds range from 2.5 to 7.5 mm., with a median of 5 mm. Nine of the sherds are buff in color, and three are gray. Hardnesses range from 2.5 (cryolite) to 4 (fluorite).

One sherd is shell-tempered and buff in color. It is chalky in texture and appears smoothed on the exterior surface. This sherd was found in the 6- to 12-inch level in the disturbed portion of the mound. Similar sherds were recovered from the White Rock site (14JW1) and the Warne site (14JW2) in the Lovewell Reservoir.

## STONE

Nine fragments of flint were recovered. One piece is a roughly modified core of gray flint. It is 47 mm. wide, 53 mm. long, and 29 mm. thick. Six small, thin, unmodified flakes of chert and jasper were scattered throughout the mound. Two specimens of worked jasper were recovered from the surface of the mound prior to excavation. One piece is a section of a drill or point. The tip and basal portions are missing. It is triangular, with very slightly convex sides. In cross section it appears diamond-shaped, with a noticeable increase in the amount of beveling on the faces of two alternate sides. The specimen is 13.5 mm. wide, 23.5 mm. long, and 5 mm. thick. The other stone specimen is triangular and is broken along one side and the base. The intact side has fine secondary chipping along the edge, but only on one face. It is 16.5 mm. wide at the base, 23.5 mm. long, and 5.5 mm. thick. The specimen is too fragmentary to suggest more than a cutting or scraping implement.

## SHELL

Two conch-shell (*Busycon contrarium* Conrad) pendants were located in the funnel-shaped portion of the pit. The first pendant was encountered 3 feet 7 inches below the surface. The surrounding matrix was composed of burned limestone rocks and a few fragments of human bone. Dark-colored soil had infiltrated down from the surface as a result of the disturbance caused by amateurs, but the specimen was discovered in situ. It is trapezoidal in form and has a circular perforation near the top. The pendant measures 92 mm. in length, 75.5 mm. in width at the bottom and 39 mm. at the top. The hole which is 4 mm. in diameter and appears to have been worked from the interior, is located 22 mm. down from the top edge and is equidistant from the two sides. A portion of a second hole, drilled from the interior, appears along one edge, 9 mm. below the top (pl. 57, *c*). The second shell pendant, located immediately above the floor of the pit at a depth of 5 feet below the surface, was surrounded by dark soil mixed with limestone rocks, burned human bone, and charcoal. The shell is trapezoidal and does not appear to have been as finely worked as the other pendant. A hole, 4.5 mm. in diameter, has been drilled through the shell 4 mm. below the top and slightly off toward one side. The pendant is 129 mm. long, 123 mm. wide at the bottom, and 41 mm. wide at the top (pl 57, *d*). There is no indication of purposeful incising on the surfaces of either specimen.

### HUMAN REMAINS

The human remains from the Russell Mound consisted of 11 identifiable specimens (identifications by William M. Bass III, River Basin Surveys, Smithsonian Institution). Number 71, a human metatarsal, is the only specimen that shows an anomaly. Pathological conditions were not detected in any of the bones. The catalog numbers and identifications of the specimens are given below:

| *Catalog No.* | *Identification and comments* |
|---|---|
| 34 | Human, tooth, upper right first or second molar. Wear indicates age of at least 15 years plus. |
| 54 | Human, left clavical. Female?, young adult. |
| 55 | Human, metacarpal, second right. Adult. |
| 56 | Human, fibula, right, distal end. Male? |
| 58 | Human, metatarsal, second right. Adult. |
| 65 | Human, tooth, lower right first or second molar. Wear indicates age of at least 12 years plus. |
| 66 | Human, vertebra, 11th thoracic. Arthritic lipping indicates an age of at least 40 years plus. |
| 71 | Human, metatarsal, third right. Adult with an abnormal prominence on the proximal end. |
| 74 | Human, rib, right, possibly 4 through 7. Young? |
| 80 | Human, tooth, lower left first or second molar. Wear indicates an old adult. |
| 81 | Human, section of mandible, left side. That portion of the jaw including and behind the third molar. Fragment of root of third molar in place. The condyle and about half of the ascending ramus are missing. |

The only other bone specimen in the site has been described as "the cannon bone of a fawn."

### SUMMARY

The Russell Mound is a low, circular, natural rise into which an irregular shaped pit was dug. Human remains from at least three individuals were deposited in the pit. Cultural material such as flint chips, pottery sherds, and shell pendants accompanied the burials, although positive association cannot be demonstrated in all instances. A fire of some intensity was built near the top of the pit, subsequently burning and charring some of the human bone. Since the bone was scattered over a rather wide area, and the placement of the fire was very restricted, evidence of cremation is not conclusive. An alternative possibility may be that all the human bone was thrown into the fire and then purposely scattered, completely or partially destroying some of the bones and barely affecting the others. Ultimately, limestone slabs, gathered from the nearby outcrops, were deposited over the entire structure.

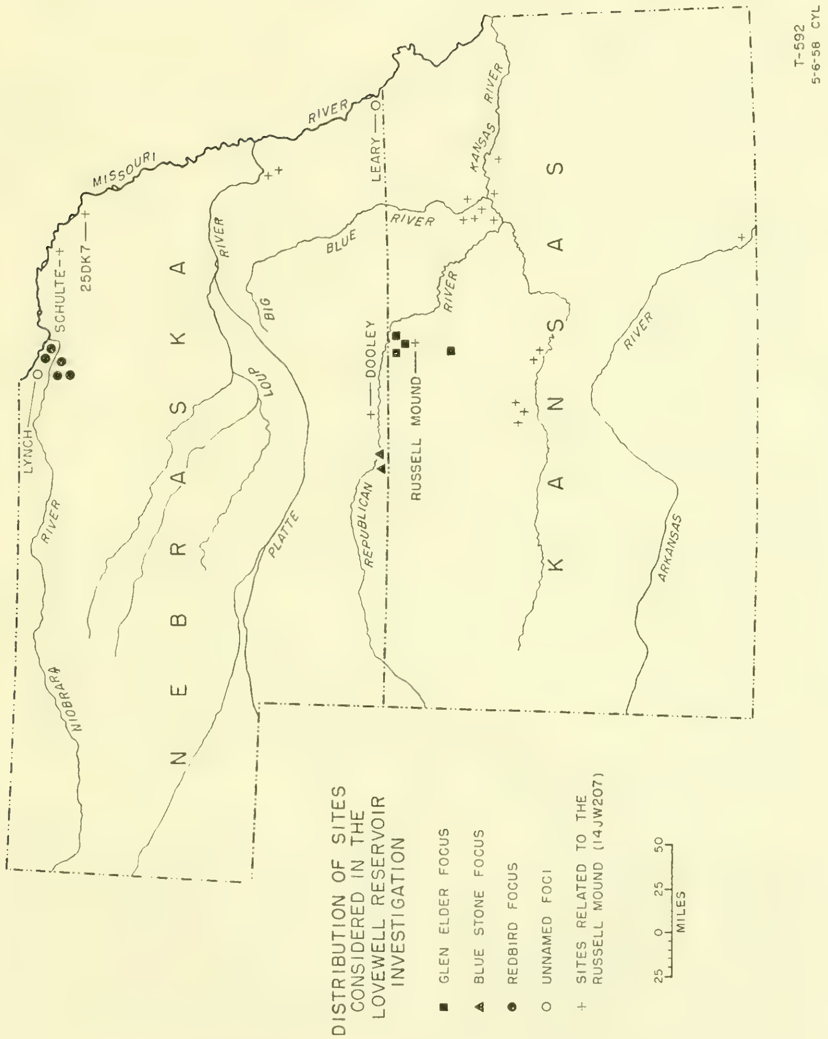

DISTRIBUTION OF SITES CONSIDERED IN THE LOVEWELL RESERVOIR INVESTIGATION
■ GLEN ELDER FOCUS
▲ BLUE STONE FOCUS
● REDBIRD FOCUS
○ UNNAMED FOCI
+ SITES RELATED TO THE RUSSELL MOUND (14JW207)
25 0 25 50
MILES
N E B R A S K A
K A N S A S
MISSOURI
RIVER
NIOBRARA
RIVER
LOUP
RIVER
PLATTE
BIG
BLUE
RIVER
REPUBLICAN
RIVER
KANSAS
RIVER
ARKANSAS
RIVER
LYNCH
SCHULTE
25DK7
LEARY
DOOLEY
RUSSELL MOUND
T-592
5-6-58 CYL

FIGURE 43.—Site distribution map.

## DISCUSSION OF THE BURIAL MOUND COMPLEX AT RUSSELL MOUND

In the preceding pages, the Russell Mound has been described as a separate entity. However, before a site can be placed in its proper archeological context, its relationship to other sites must be analyzed. The following summaries are important because they suggest affiliations with the Russell Mound site.

The Sweat Bee Mound (14PO14) is a tumulus situated on a high bluff overlooking the Big Blue River about 85 miles southeast of the Russell Mound. It was covered with limestone slabs and measured about 26 feet in diameter and 2 feet in height (Cumming, 1958). The mound resembles site 14JW207 primarily in its geographical disposition and rock-slab covering. It contained seven primary burials and a small assemblage of stone and shell artifacts, but no pottery was recovered. The mound has been ascribed to the Woodland Pattern.

Site 14EW18, located on a high escarpment above Bluff Creek about 85 miles south of the Russell Mound, consists of four or five limestone slab-covered burial mounds ranging from 10 to 30 feet in diameter and 2 to 3 feet in height (Kivett, 1947). The mounds had been disturbed by local collectors and reportedly contained human burials. No excavations were conducted at the site.

The Hudson site (14EW24), also about 85 miles south of the Russell Mound, is situated on the top of a butte facing down onto a branch of Thompson Creek (Smith, 1949). Seven sandstone-covered burial cairns were found at this site, four of which were excavated. They were about 1 foot in height and 5 or 6 feet in diameter (Smith, C., personal communication). One of the mounds was found to contain a flexed burial within a partially outlined stone cist. Three of the unexcavated cairns "did not contain recognizable cists." Artifacts were totally lacking at the site.

Jacob Vradenburg Brower noted mounds "up and down the Kansas and Blue Rivers and their tributaries for long distances" (Brower, 1898). He specifically wrote of mounds near the Griffing Village site on Wild Cat Creek in Riley County, Kans. All the mounds were on high bluffs and were covered with stone and earth. They measured 1.5 to 4 feet in height and 25 to 35 feet in diameter. He states that "little else than fragments of burned human bones" was recovered from the mound fill. The mounds were not grouped together, but were scattered singly at different places.

Other mounds are reported in the vicinity of the Schmidt Village site in the valley of Mill Creek, Wabaunsee County, Kans. (Brower, 1898). They are described as being about 2 feet in height and 25 feet in diameter. Their construction consists of limestone and loam coverings. It was also noted that some of the rocks had been fired.

On Blue Mont, north of Manhattan, Kans., a mound was opened that "contained skeletons, arrow-heads, beads, etc." (Brower, 1898). It was composed of a layer of loam covered over with 2 feet of stones and dirt.

A rock-covered tumulus was reported near the Nudson Village site which is located on the west side of the Big Blue River near Stockdale, Kans. (Brower, 1899). The mound, situated on a high bluff, measured 3 feet in height and 45 feet in diameter. A cross section revealed a fill of ashes and human bones cloaked by a layer of rock slabs. Evidence of a pit was not conclusive.

A slab-covered mound is reportedly located on a bluff opposite the mouth of the Big Blue River (Brower, 1899). The fill contained human bones, "30 flint arrowpoints, one flint knife, fragments of a bone dagger, many shell and birdbone beads, one spearhead and one implement of catlinite" in a matrix of dirt and ashes. The top stratum was thick and composed of "stones covered with dirt."

A group of 12 mounds was investigated on the bluffs east of Walnut River near Arkansas City, Kans. (Gould, 1898). Two of the excavated mounds were circular, about 20 to 30 feet in diameter and 2 to 5 feet in height. At 1 to 3 feet below the surface, fragments of charcoal were encountered, and ash and charcoal increased in intensity from 4 to 10 feet below the surface. The deeper areas contained "stone hammers and axes, a mortar for grinding grain, flattened stones for dressing skins, flint arrow-heads and axes and grooved stones, for apparently sharpening instruments, numerous flakes of flint, also two species of Unio" and a variety of animal bones. No whole vessels were located, but sherd fragments appear to be from a container "shaped like a deep tin wash-basin, probably 6 inches deep and 10 to 12 inches in diameter." Pottery appendages were also recovered.

In 1879 four mounds were opened on a high bluff overlooking the Republican River Valley about 3.5 miles northeast of Junction City, Kans. (Morehouse, 1928). The largest was about 30 feet in diameter and 4 feet in height. The others ranged from 12 to 20 feet in diameter. The mounds were arranged in a semicircle about 80 feet apart. They were built of "layers of stone and earth" and contained human remains, fragments of pottery, pipes, and flintwork lying on the original ground surface.

Mound No. 2, at the Weeping Water site (25CC34), is located on the top of a bluff in Cass County, Nebr., about 130 miles northeast of the Lovewell Reservoir. It measured 48 feet in diameter and 2 feet in height (Strong, 1935). The mound was composed of a thin layer of fire-baked earth underlying a stratum of gray soil and "numerous slabs of limestone." A layer of dark humus had accumulated over the entire structure since the time of its construction. Recovered from the intermediate soil zone were the remains of two human bundle burials and three stone artifacts. There was no clear distinction between the earth in the mound and the old soil level, which would seem to indicate that the mound was a natural rise. Affiliations with the Nebraska Aspect were postulated for Mound No. 2. Resemblances between 14JW207 and the Weeping Water Mound may be noted in their geographic locations and stratigraphic composition. Burned areas exist in each, but are more extensive in Mound No. 2. Both mounds have a covering of limestone slabs and dirt matrix, but the slabs are more numerous and constitute a more definite stratum at 14JW207.

At the Pawnee Creek site (25CC2) in Cass County, Nebr., a circular depression of limestone slabs was excavated (Hill and Cooper, 1938 b). Evidence suggests that the rocks were once sustained by a wooden framework that had since rotted and collapsed. A 7.5-foot square pit containing human bone fragments existed under the slabs. One rim and two body sherds were recovered from the soil above the rocks.

As early as 1875 rock-slab-covered mounds containing human burials were excavated on the north side of the Rock River, opposite the town of Milan, Ill. (Lindley, 1876). They were located on a high ridge and arranged in two rows forming a T. The mounds were 30 feet in diameter and 7 to 9 inches in height.

One mile east of Moline, Ill., a group of 33 conical and linear mounds was located. One mound, No. 5, was excavated and found to be covered with two layers of limestone. The mound was 46 feet long, 6 feet broad, and a few inches high (Gass, 1881). No cultural material was recovered from the fill.

The foregoing descriptions of mound sites have been presented in order to demonstrate the wide variety of traits that are exhibited by "rock-covered mounds" within the central Great Plains and adjacent areas. Numerous mounds of this type were reported in the latter part of the 19th century, but by the time more exact archeological procedures were perfected, it appears that many of the mounds had been destroyed. Perhaps this was due to the fact that the tumuli are easily recognizable as artificial and were reputed to contain valuable items.

The sites described in this report show a wide range of traits. Some of the mounds are grouped together, others are scattered singly. Usually they are circular, but this is not always the case. Their sizes range from over 80 feet to less than 6 feet in diameter, with heights from 5 feet to only a few inches above the surrounding surface. A few contain stone cists, others simply unlined burial pits, and the remainder lack either. Human interments may be of primary or secondary types, the latter often associated with crematorial practices. From the published data, mortuary offerings seem to occur most often with the primary burials. However, burial accompaniment in the rock-covered mounds seems to be the rule rather than the exception. In the collections available for study, it would be difficult to suggest a single diagnostic artifact. The specimens run a gauntlet of various types of stone, bone, shell, and pottery, but there is little to compare in the way of artifacts between the sites.

In contrast to the diversity that exists between these sites, certain elements appear throughout as a medium to indicate interrelationships. Geographically, all the mounds are situated on the tops of bluffs or high escarpments overlooking stream courses. Each of the mounds is covered with a layer of haphazardly placed rocks. Generally this covering is composed of locally gathered limestone slabs, but this trait of capping the mound with rocks is not restricted to areas where limestone is available; other types of rocks are also used. Lastly, these burial mounds are an expression of a nonmaterial side of life—ideas and sentiments. Within a temporal and spatial range, the builders of the rock-covered mounds believed that the disposal of the dead should involve certain practices. That these practices were directed toward a special group of individuals within the society seems to be a reasonable inference.

On the basis of this discussion it is apparent that the Russell Mound site (14JW207) resembles other burial mounds, but in each comparison almost as many differences as resemblances are apparent. In view of the small number of artifacts recovered from the mound, it may be premature to assign it to a definite archeological horizon. The pottery comparisons with three other documented sites demonstrate affiliations with the Upper Republican Aspect. A burial mound at the Weeping Water site (25CC34) has been assigned to the Nebraska Aspect. This mound, although lacking pottery, has many similarities with the Russell Mound. The Sweat Bee Mound site (14PO14), ascribed to the Woodland Pattern, also has traits in common with the Russell Mound, but they are of a very generalized character.

On the basis of these comparisons, it appears that the Russell Mound will fall into the Middle Ceramic Period on the central Great Plains, a time range from about A.D. 1300–1500. (Champe, 1946). It is my opinion that the mound dates very early in the Upper Republican Aspect, probably around A.D. 1200.

# BIBLIOGRAPHY

Berry, B., and Chapman, C.
1942. An Oneota site in Missouri. Amer. Antiq., vol. 7, No. 3, pp. 290–305.

Boots, Chester O., and Associates.
1948. Graphic aids to osteology. Scientific Illustrators. San Diego, Calif.

Brower, Jacob Vradenburg.
1898. Quivira. Memoirs of the explorations in the Basin of the Mississippi, vol. 1. St. Paul.
1899. Harahey. Memoirs of the explorations in the Basin of the Mississippi, vol. 2. St. Paul.

Champe, John L.
1946. Ash Hollow Cave. Univ. Nebraska Stud., n.s., No. 1.

Cooper, Paul L.
1936. Archaeology of certain sites in Cedar County, Nebraska. *In* "Chapters in Nebraska Archaeology," by E. H. Bell, vol. 1, pp. 11–145.
1955. The archeological and paleontological program in the Missouri Basin, 1950–1951. Smithsonian Misc. Coll., vol. 126, No. 2, pp. 13–14.

Cosner, Arron J.
1956. The "stone scraper" and arrow "wrench." Amer. Antiq., vol. 21, No. 3, pp. 300–301.

Cumming, Robert B., Jr.
1958. Archeological investigations at the Tuttle Creek Dam, Kansas. Bur. Amer. Ethnol. Bull. 169, Riv. Bas. Surv. Pap. No. 10.

Cummings, Thomas S.
1953. A preliminary report on the Blue Stone Focus, White Rock Aspect. Abstract. Proc. Nebraska Acad. Sci. May.

Dunlevy, M. L.
1936. A comparison of the cultural manifestations of the Burkett and Gray-Wolfe sites. *In* "Chapters in Nebraska Archaeology," by E. H. Bell, vol. 1, pp. 147–247.

Fenenga, Franklin.
1951. Appraisal of the archeological and paleontological resources of the Lovewell Reservoir, Jewell County, Kansas. Prepared by the Missouri Riv. Bas. Surv., Smithsonian Inst. December. (Mimeographed.)

Fenneman, Nevin M.
1931. Physiography of western United States, pp. 25–57. New York and London.

Flora, Snowden D.
1948. Climate of Kansas. Rep. Kansas State Board Agr., vol. 67, No. 285. Topeka.

Fowke, Gerard.
1910. Antiquities of central and southeastern Missouri. Bur. Amer. Ethnol. Bull. 37.
1922. Archeological investigations. Bur. Amer. Ethnol. Bull. 76.

Freed, Mary L.
——— The Lynch site, 25BD1. MS., M. A. thesis, Univ. Nebraska, 1954.

Gass, John.
1879–1881. Report of explorations of mounds in Rock Island County, Illinois, in 1879 and 1880. Proc. Davenport Acad. Nat. Sci., vol. 3, p. 135.

Gould, C. N.

1898. Prehistoric mounds in Cowley County. Kansas Acad. Sci. Trans., vol. 15, pp. 79–80.

Griffin, James B.

1937. The archeological remains of the Chiwere Sioux. Amer. Antiq., vol. 2, No. 3., pp. 180–181.

1952. Archeology of eastern United States. Univ. Chicago Press.

Hill, A. T., and Cooper, P.

1938 a. Archaeological campaign of 1937. Nebraska Hist. Mag., vol. 18, No. 4, pp. 243–353.

1938 b. The Pawnee Creek site. Nebraska Hist. Mag., vol. 18, No. 4, pp. 278–287.

Hill, A. T., and Wedel, Waldo, R.

1936. Excavations at the Leary Indian village and burial site, Richardson County, Nebraska. Nebraska Hist. Mag., vol. 17, No. 1, pp. 3–73.

Kidder, Alfred V.

1932. The artifacts of Pecos. Published for the Phillips Academy by Yale Univ. Press. New Haven.

Kivett, Marvin F.

1947. Preliminary appraisal of archeological and paleontological resources of Kanopolis Reservoir, Ellsworth County, Kansas. Riv. Bas. Surv., Missouri Basin Project, Smithsonian Inst. (Mimeographed.)

1952. Woodland sites in Nebraska. Nebraska State Hist. Soc., Publ. Anthrop., No. 1.

Lindley, Clarence.

1867–1876. Mound explorations in 1875. Proc. Davenport Acad. Nat. Sci., vol. 1, p. 111.

Morehouse, George P.

1928. Kansas archaeology. *In* "The History of Kansas State and People," vol. 2, p. 1015.

Mott, Mildred.

1938. The relation of historic Indian tribes to archaeological manifestations in Iowa. Iowa Journ. Hist. and Politics, vol. 36, No. 3, pp. 227–314.

Newman, T. M.

1955. Documentary sources on the manufacture of pottery by the Indians of the Central Plains and Middle Missouri. Plains Anthropologist, No. 4, pp. 13–20.

Price, Raymond S.

——— Early ceramic period sites in northeastern Nebraska. MS., M. A. thesis, Univ. Nebraska, 1956.

Rusco, Mary Kiehl.

1960. The White Rock Aspect. Note Book No. 4, Laboratory of Anthropology, Univ. Nebraska.

Sisson, Septimus.

1930. The anatomy of the domestic animals. 2d ed. Philadelphia and London.

Smith, Carlyle S.

1949. Archeological investigations in Ellsworth and Rice Counties, Kansas. Amer. Antiq., vol. 14, No. 4, pp. 292–300.

Spaulding, Albert C.

1956. The Arzberger site, Hughes County, South Dakota. Occ. Cont. Mus. Anthrop., Univ. Michigan, No. 16.

Strong, William D.

1935. An introduction to Nebraska archeology. Smithsonian Misc. Coll., vol. 93, No. 10.

U.S. Department of Agriculture.

1941. Climate and man. Yearbook of Agriculture. Washington, D.C.

Wedel, Waldo R.

1935. Reports on the field work by the archeological survey of the Nebraska State Historical Society. May 1–July 23, 1934. Nebraska Hist. Mag., vol. 15, No. 3.

1936. An introduction to Pawnee archeology. Bur. Amer. Ethnol. Bull. 112.

1940. Cultural sequences in the Central Great Plains. Smithsonian Misc. Coll., vol. 100, pp. 291–352.

Wedel, W. R., and Hill, A. T.

1943. Scored bone artifacts of the Central Great Plains. Proc. U.S. Nat. Mus., vol. 92, pp. 91–100.

Wheeler, Richard P.

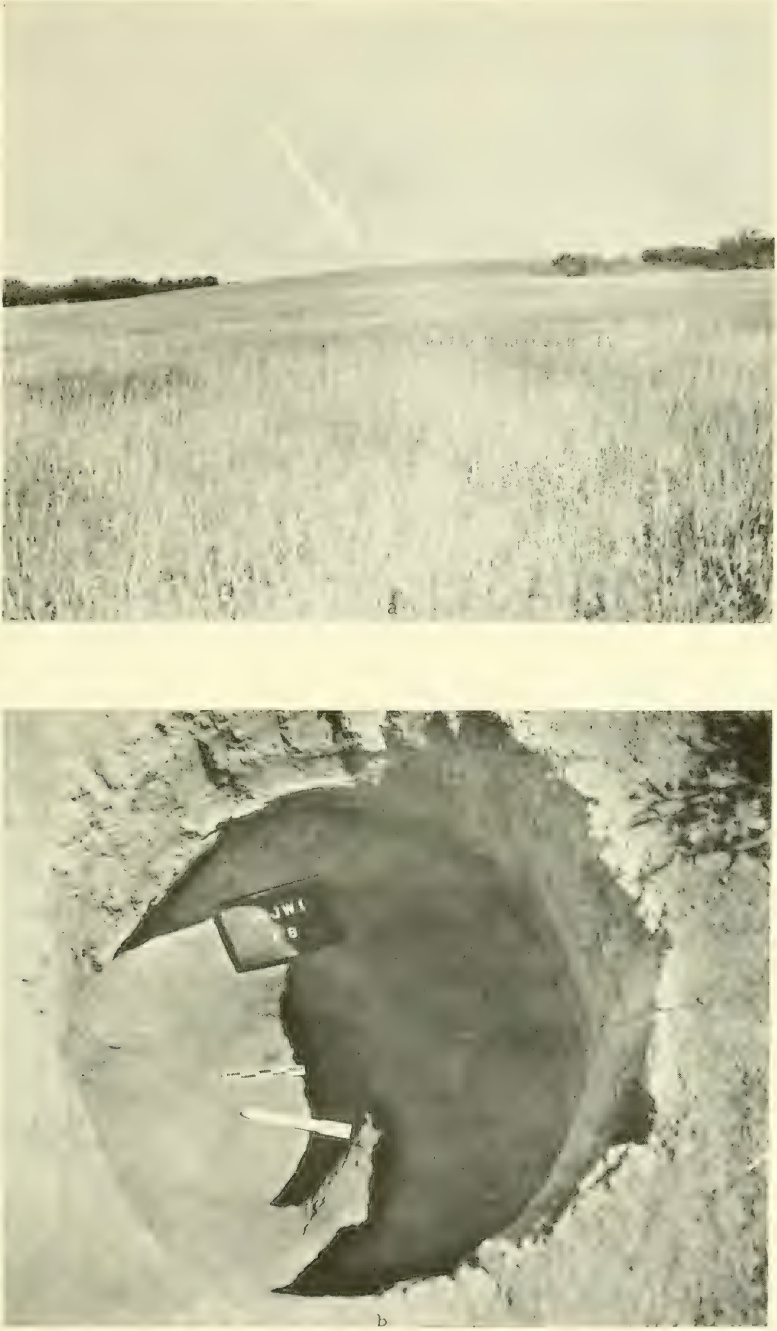
1952. Plains ceramic analysis: a check-list of features and descriptive terms. Plains Archeol. Conf. News Letter, vol. 5, No. 2.

Wilford, Lloyd A.

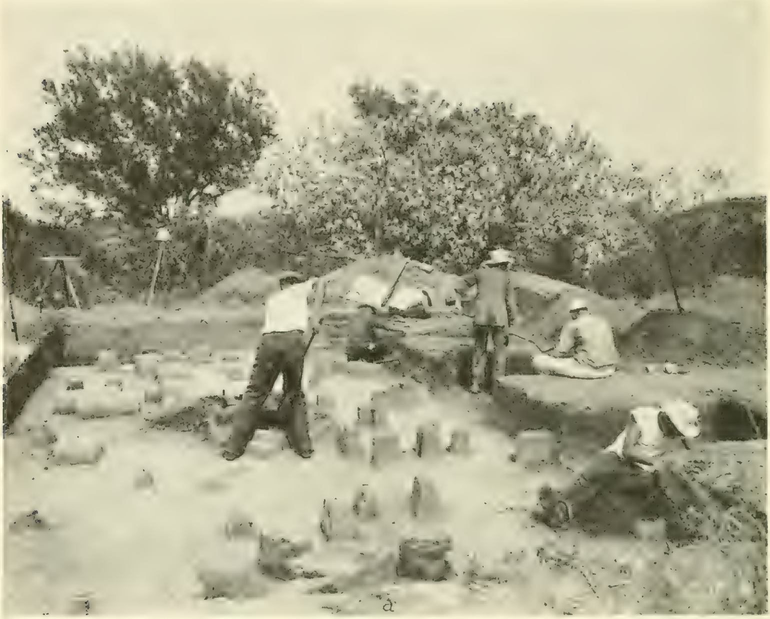
1955. A revised classification of the prehistoric cultures of Minnesota. Amer. Antiq., vol. 21, No. 2, pp. 130–142.

Wood, W. R.

——— The Redbird Focus. MS., M. A. thesis, Univ. Nebraska, 1956.



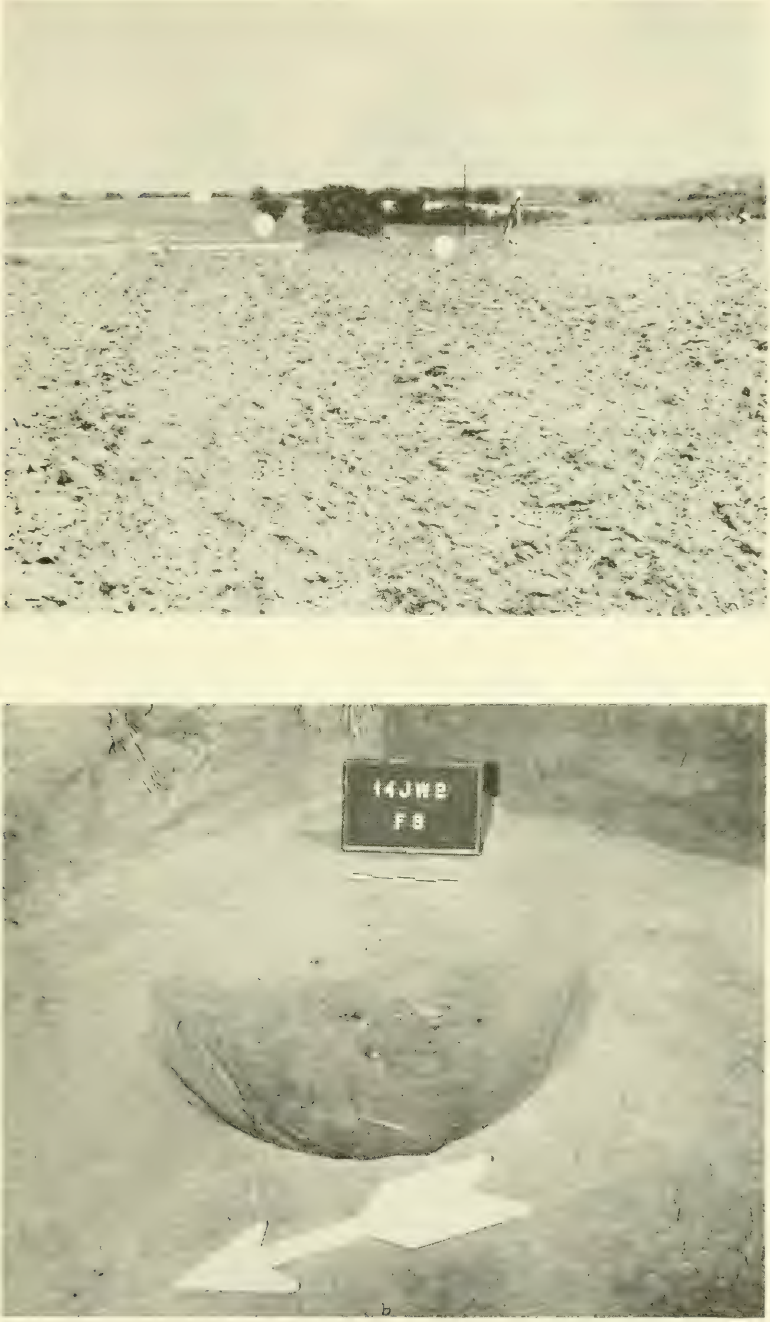
*a*, Looking north toward the White Rock site (14JW1). The arrow points to the ridgetop and area of excavation. *b*, Looking down into a bell-shaped storage pit at site 14JW1.



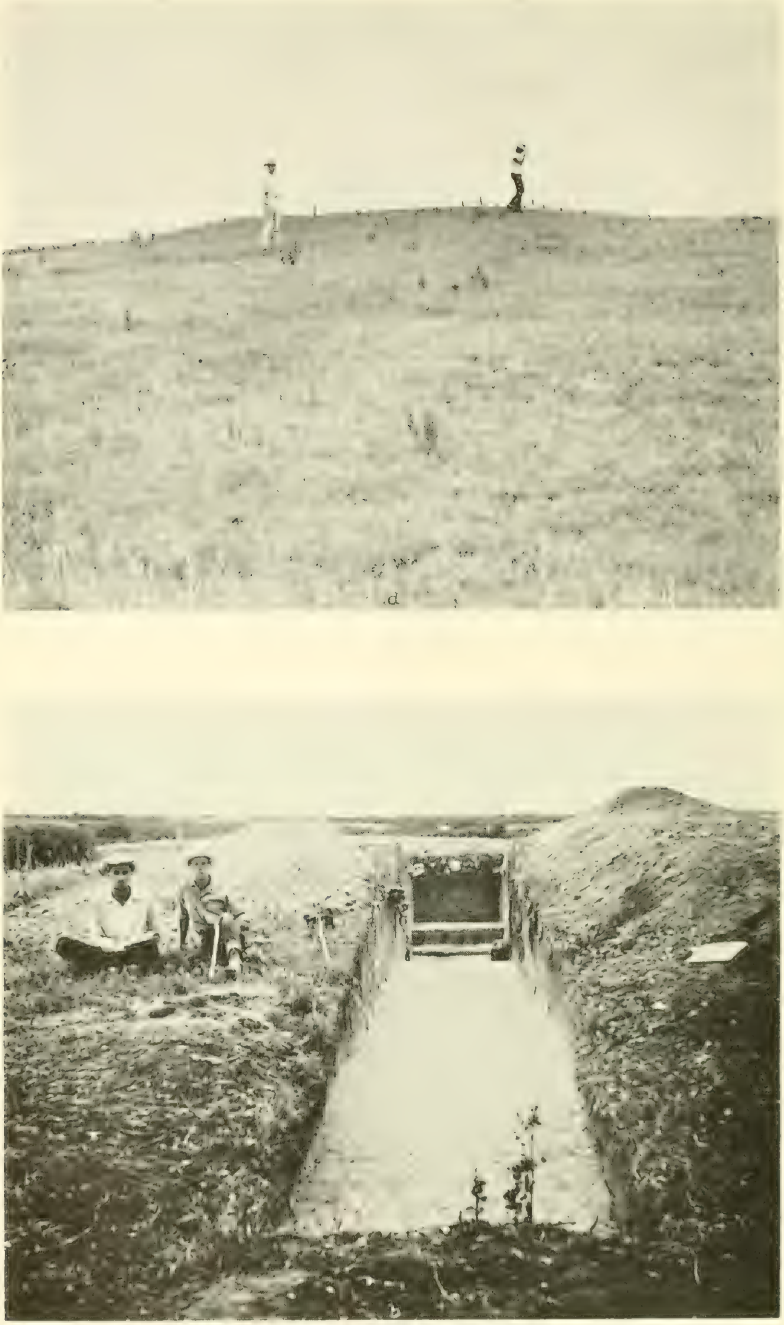
a

b

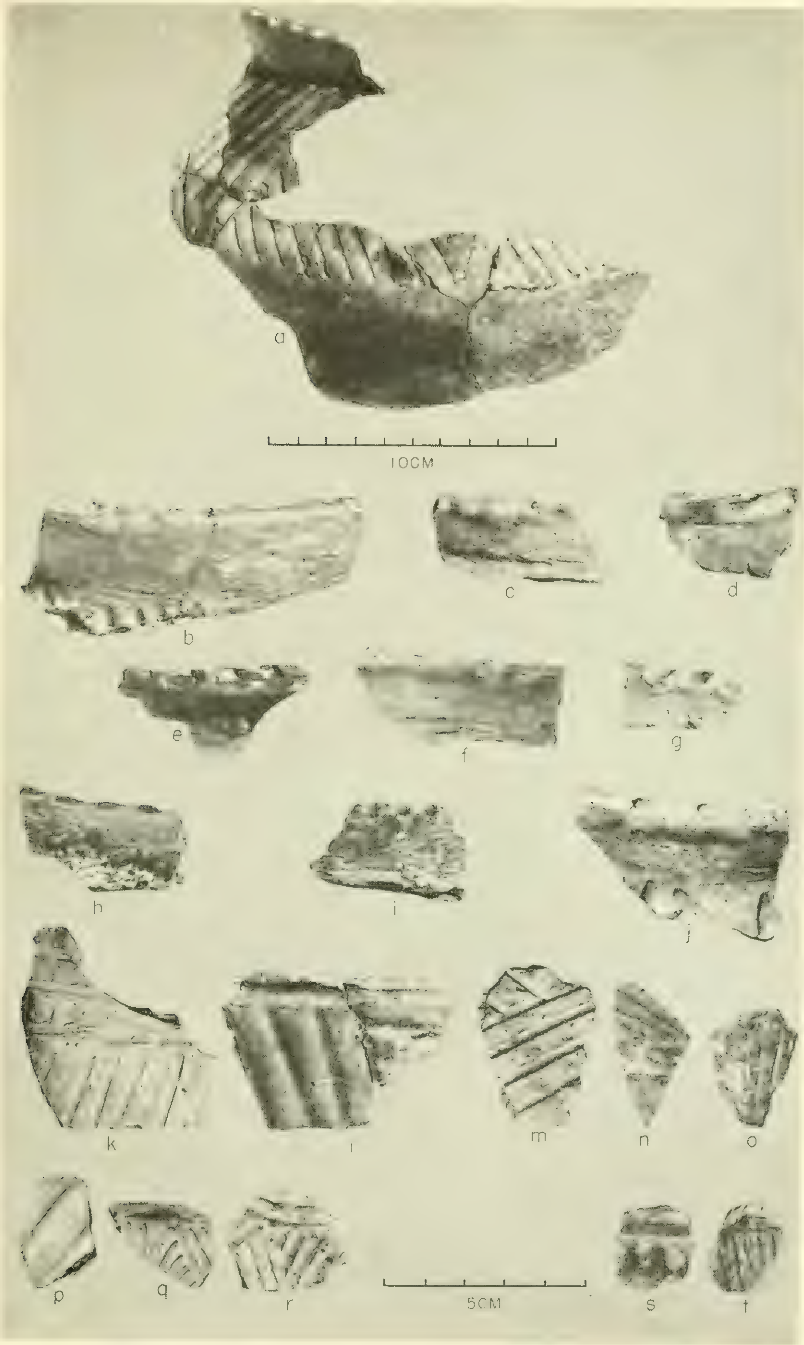
*a*, Looking east into Excavation Unit 1 at the Intermill site (14JW202). Soil pedestals mark the locations of postmolds. *b*, The crew scraping the subsoil in search of archeological remains at site 14JW202.



*a*, Looking east across the Warne site (14JW2). Village detritus was concentrated on the three ridges marked by the white dots. *b*, Cross section of a small firepit at site 14JW2. Note charcoal specks and bone fragment.



*a*, Looking east toward the Russell Mound (14JW207). *b*, Looking south into the trench excavation at site 14JW207.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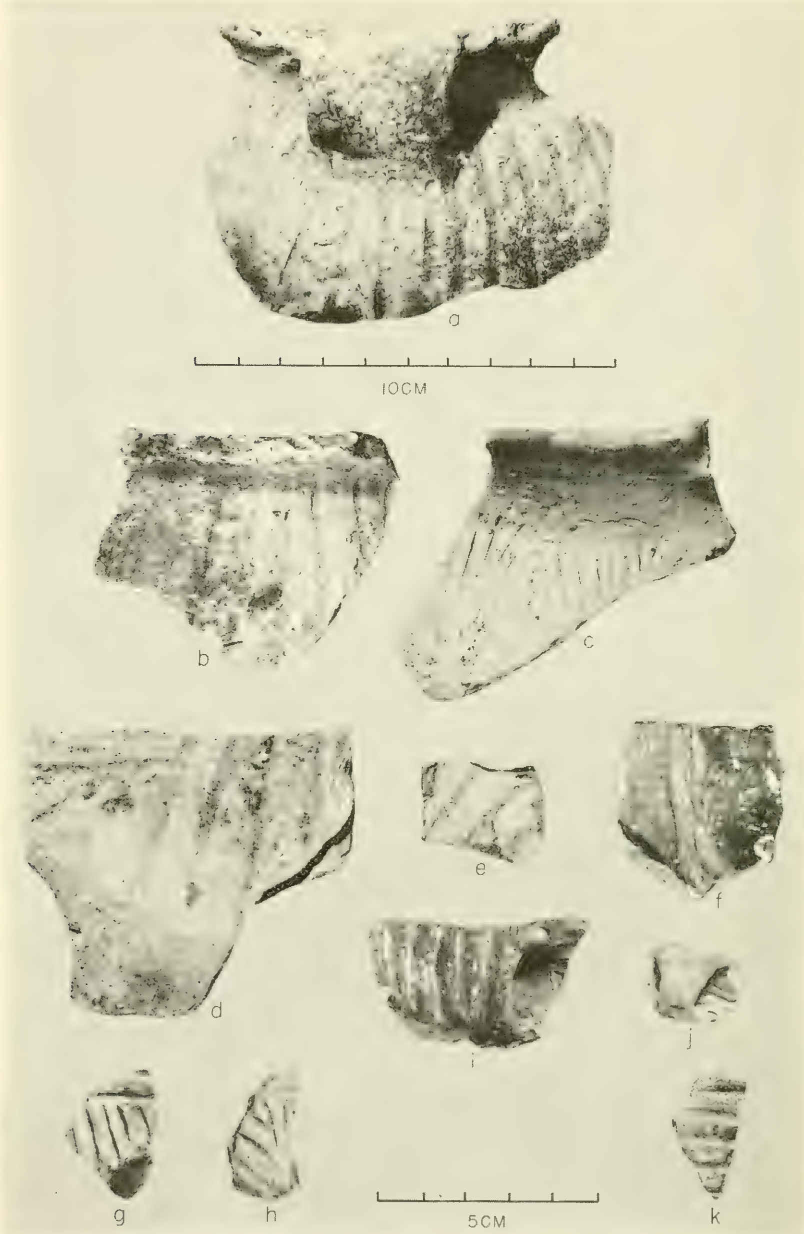
t

Walnut Decorated Lip pottery. *a*, Partially restored vessel. *b–j*, Rim sherds. *k–t*, Shoulder sherds.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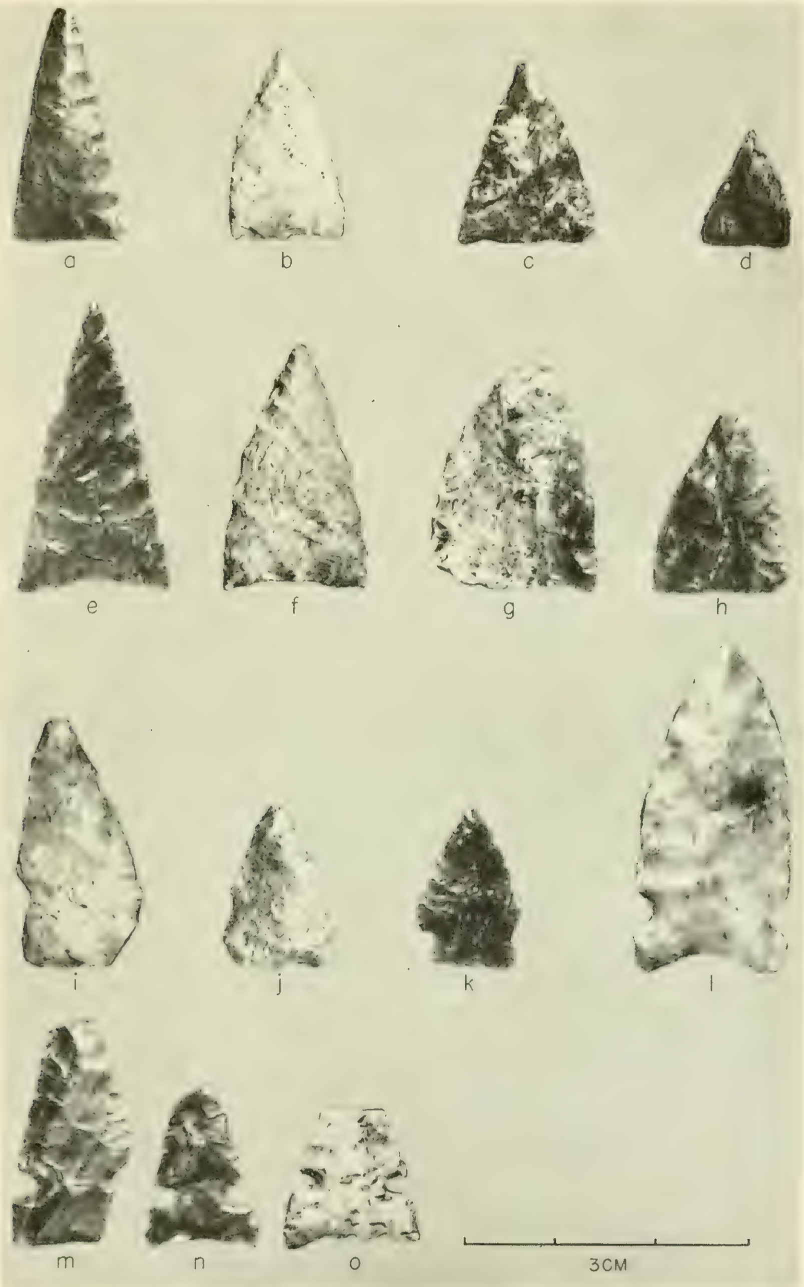
Group 2 pottery. *a–c*, Rim sherds. *d–h*, Shoulder sherds. *i–j*, Handles. *k*, Miscellaneous rim sherd.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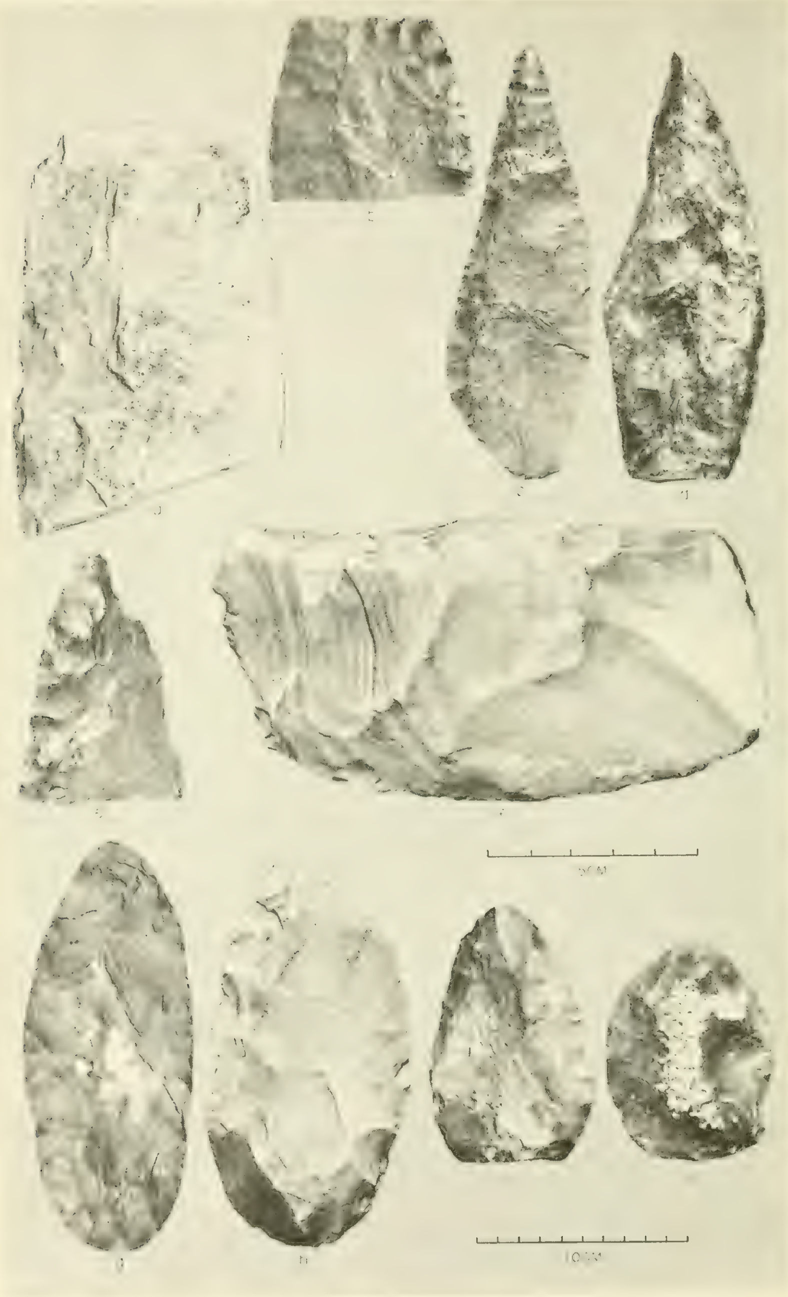
Projectile points. *g–h*, The White Rock site (14JW1). *d*, *i*, The Intermill site (14JW202). *a–c*, *e–f*, *j–o*, The Warne site (14JW2).


a
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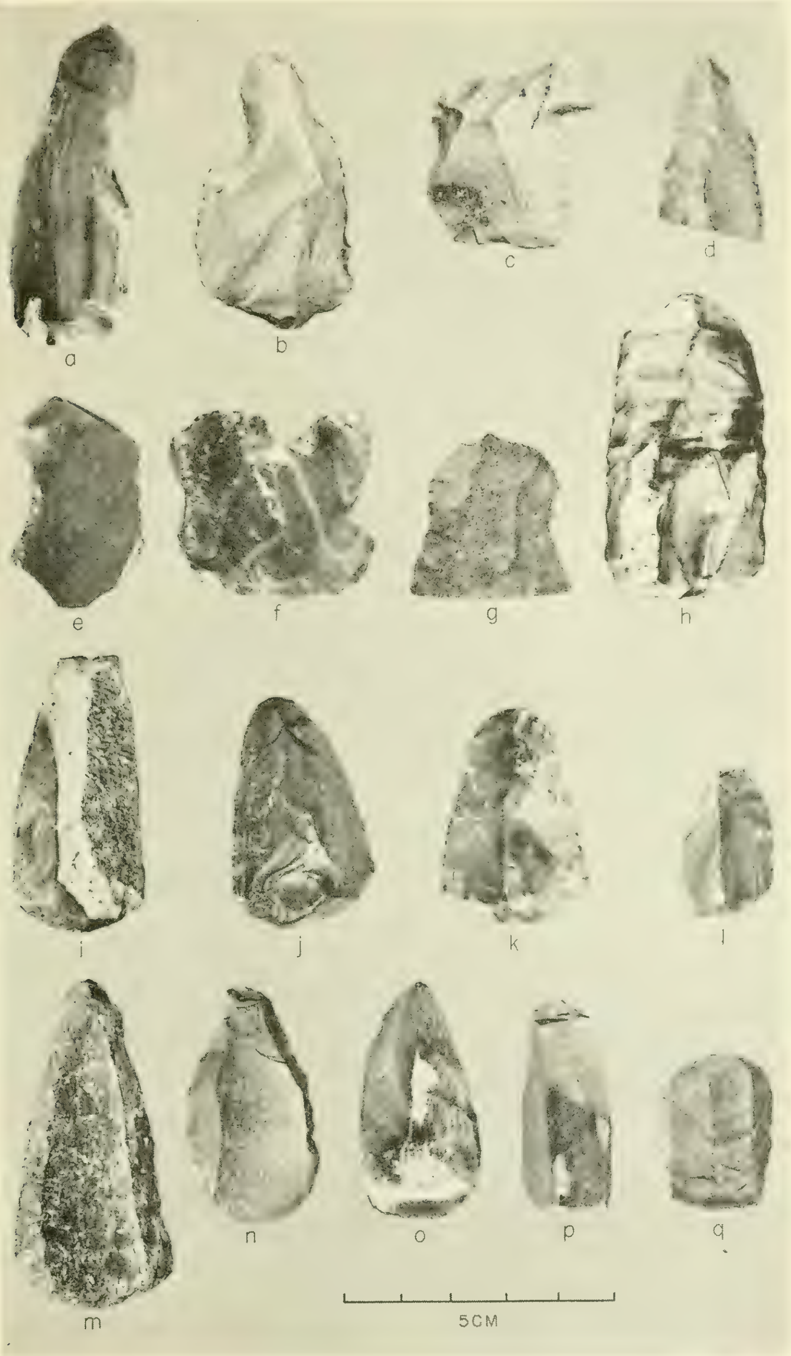
Stone tools. *e*, The White Rock site (14JW1). *a–d*, *f–j*, The Warne site (14JW2).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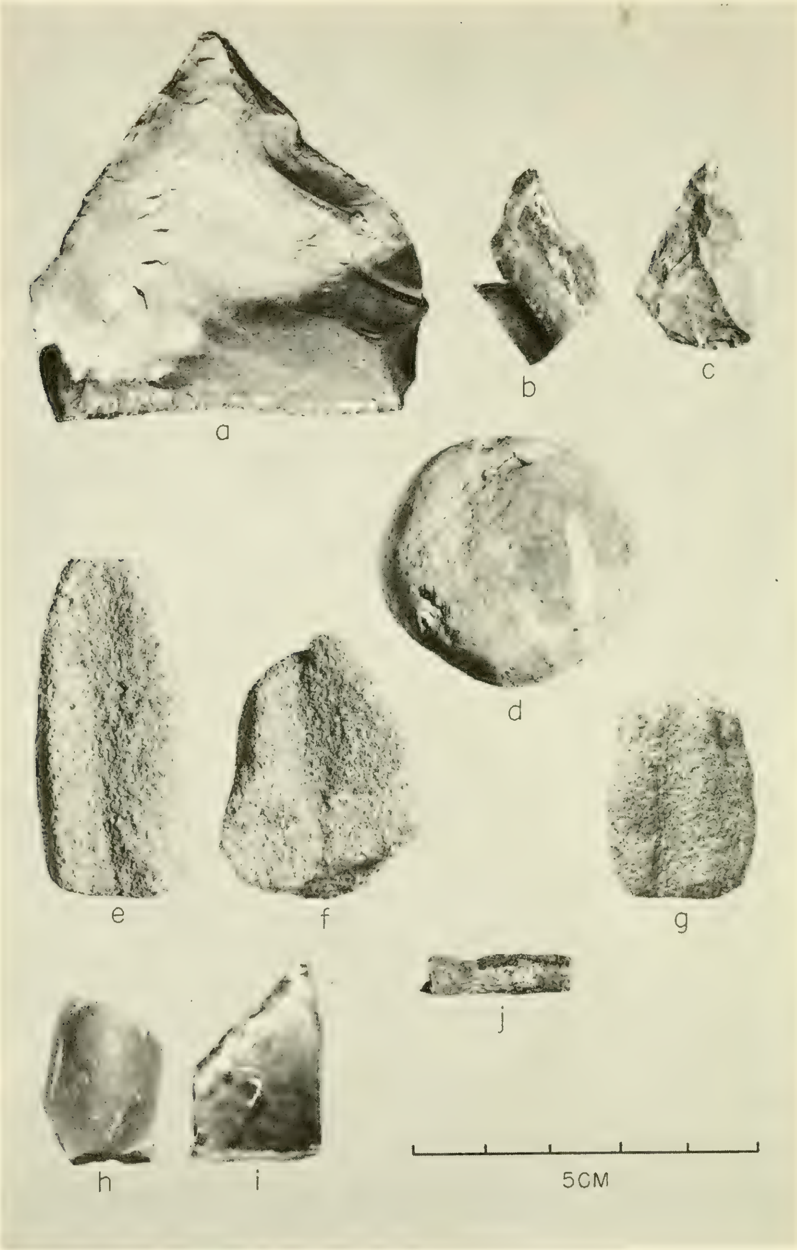
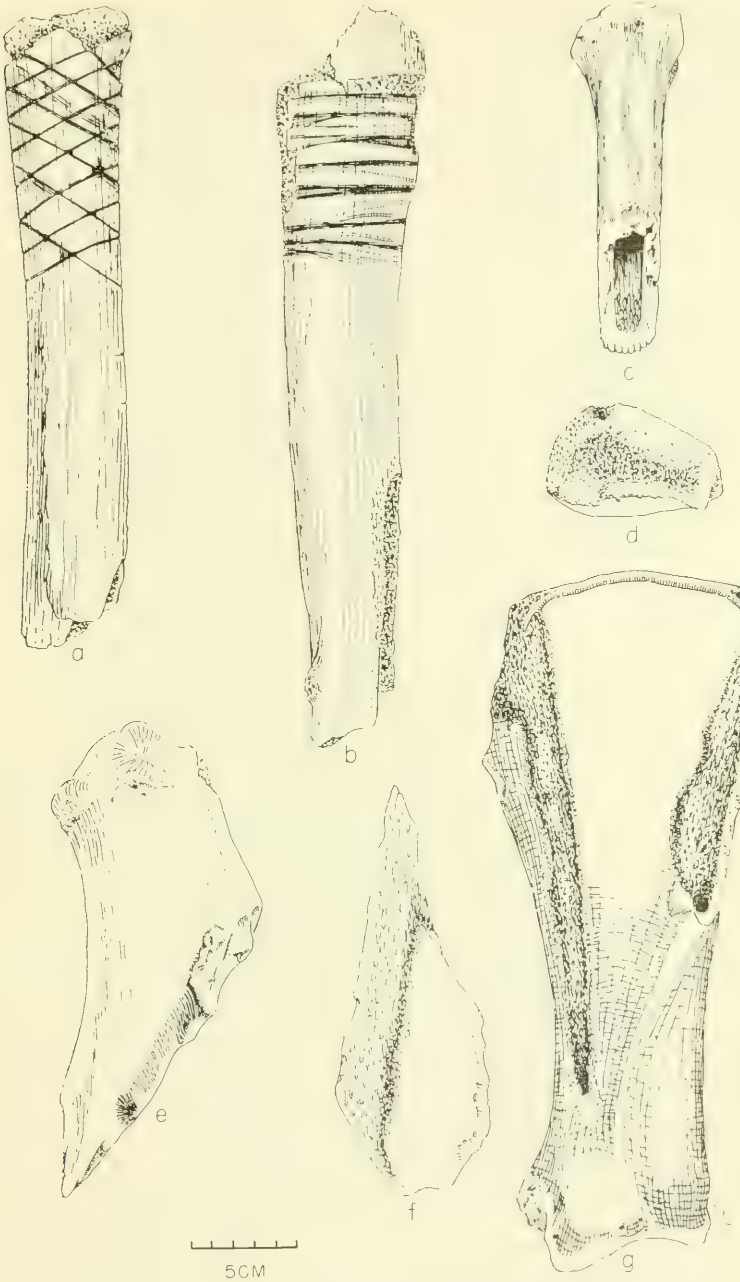
p
q
5CM

Stone scrapers. *d, g, j, p,* The White Rock site (14JW1). *e–f, h, k, q,* The Intermill site (14JW202). *a–c, i, l–o,* The Warne site (14JW2).



Stone, glass, and metal objects. *g*, The White Rock site (14JW1). *f*, *i–j*, The Intermill site (14JW202). *a–e*, *h*, The Warne site (14JW2).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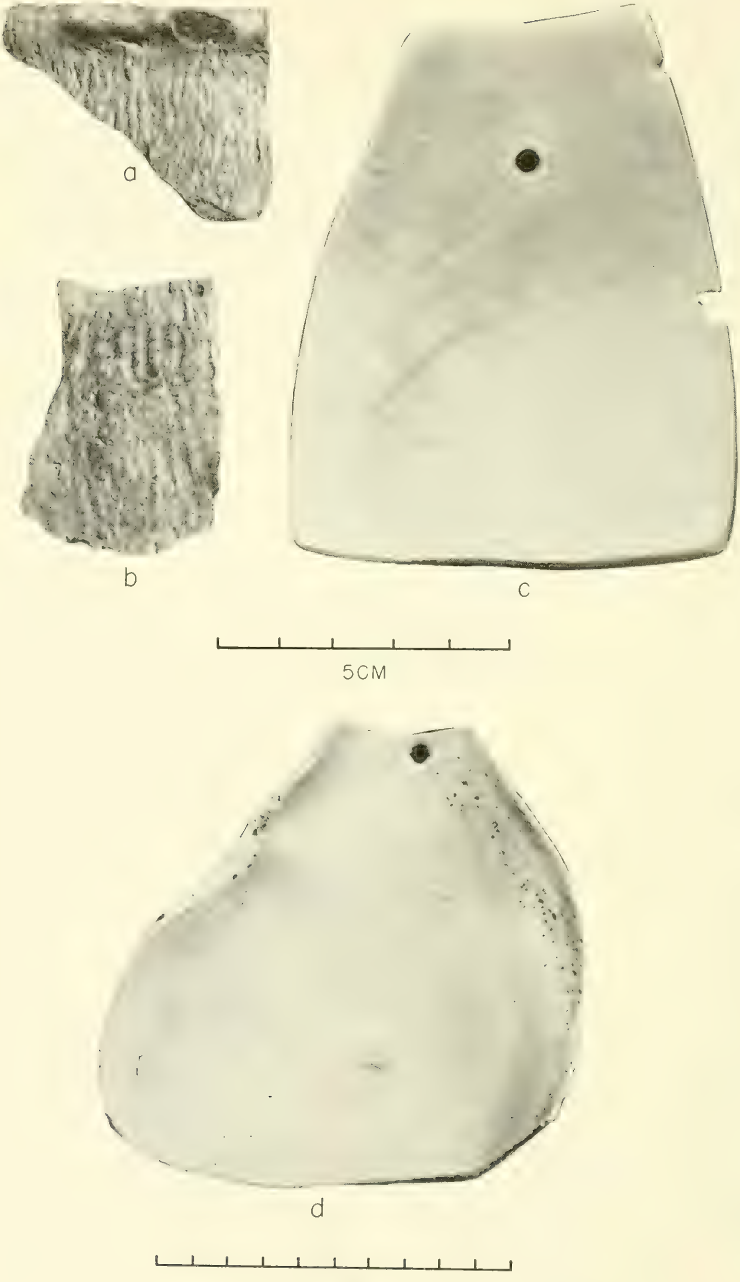
Bone artifacts from the Warne site (14JW2).


a
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Rim sherds and shell pendants from the Russell Mound site (14JW207).

# LIST OF REPORTS, ARTICLES, AND NOTES RELATING TO THE SALVAGE PROGRAMS PUBLISHED IN OTHER SERIES

(As of November 1962)

ADAMS, WILLIAM RICHARD.

1946. Archeological survey of Martin County. Indiana Hist. Bull., vol. 23, No. 6, pp. 195–224.

1949. Archeological notes on Posey County, Indiana. Indiana Hist. Bur. Indianapolis.

ADAMS, WILLIAM Y., and NETTIE K.

1959. An inventory of prehistoric sites on the Lower San Juan River, Utah. Mus. Northern Arizona Bull. 31, pp. 1–54.

ANDERSON, HARRY H.

1956. A history of the Cheyenne River Indian Agency (South Dakota) and its military post, Fort Bennett, 1868–1891. South Dakota Hist. Coll., vol. 28, pp. 390–551.

1961. The Fort Lookout Trading Post sites—A reexamination. Plains Anthrop., vol. 6, No. 14, pp. 221–229.

1962. Additional descriptive material on Fort Pierre II, an historic site on the Oahe Dam area, South Dakota. Plains Anthrop., vol. 7, No. 17, pp. 193–196.

BABY, RAYMOND S.

1946. Survey of Delaware Reservoir area. Museum Echoes, vol. 19, No. 8, Ser. No. 208.

1949. Cowan Creek Mound exploration. Museum Echoes, vol. 22, No. 7, Ser. No. 243.

1949. Stratton-Wallace Site. Ann. Rep., Ohio State Archeol. and Hist. Soc., pp. 11–12.

1951. Explorations of the Cordray and Goldsmith Mounds. Museum Echoes, vol. 24, No. 12, Ser. No. 272.

BASS, WILLIAM M.

1962. A preliminary analysis of burial data on 255 individuals from the Sully site, 39SL4, Sully County, South Dakota. Plains Anthrop., vol. 7, No. 16, pp. 77–78.

BASS, WILLIAM M., and BIRKBY, WALTER H.

1962. The first human skeletal material from the Huff site, 32MO11, and a summary of putative Mandan skeletal material. Plains Anthrop., vol. 7, No. 17, pp. 164–177.

BELL, ROBERT E.

1948. Recent archeological research in Oklahoma. Bull. Texas Archeol. and Paleont. Soc., vol. 19, pp. 148–154.

1949. Recent archeological research in Oklahoma, 1946–1948. Chronicles of Oklahoma, vol. 27, No. 3, pp. 303–312.

Bell, Robert E.—Continued

1949. Archeological research in Oklahoma during 1947. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 6–7.

1949. Archeological excavations at the Harlan site, Fort Gibson Reservoir, Cherokee County, Oklahoma. Plains Archeol. Conf., Newsletter, vol. 3, No. 1, pp. 3–15. Lincoln.

1950. Notes on work at the Harlan site. Archeol. Newsletter, vol. 1, No. 4, pp. 1–2. Norman.

1951. Notes on work in Eufaula and Tenkiller Reservoirs. Archeol. Newsletter, vol. 2, No. 2, pp. 1–2. Norman.

1951. Notes on Tenkiller excavations. Archeol. Newsletter, vol. 2, No. 3, pp. 1–2. Norman.

1951. Notes on work at the Vanderpool sites. Archeol. Newsletter, vol. 2, No. 4, pp. 1–2. Norman.

1951. Notes on Tenkiller and Eufaula excavations. Archeol. Newsletter, vol. 2, No. 5, pp. 1–4. Norman.

1952. Notes on Keystone Reservoir survey. Oklahoma Anthrop. Soc. Newsletter, vol. 1, No. 1, p. 8.

1952. Prehistoric Oklahomans: or the Boomers came lately. Oklahoma Quart., vol. 1. No. 3, pp. 33–35.

1952. Keystone archeological survey. Oklahoma Anthrop. Soc. Newsletter, vol. 1, No. 2, p. 4.

1952. Archeological field work, Morris site. Oklahoma Anthrop. Soc. Newsletter, vol. 1, No. 3, pp. 1–3.

1953. Digging for Indian history. The Indian Sign vol. 4, No. 2, pp. 9–12.

1953. The Scott site, Le Flore County, Oklahoma. Amer. Antiq., vol. 18, No. 4, pp. 314–331.

1954. Excavations at Lake Texoma, Marshall County, Oklahoma. Oklahoma Anthrop. Soc. Newsletter, vol. 3, No. 3, pp. 2–3.

1956. Radiocarbon date from the Harlan site, Cherokee County, Oklahoma. Oklahoma Anthrop. Soc. Newsletter, vol. 5, No. 3, pp. 6–7.

1956. Radiocarbon dates from the Harlan site, Cherokee County, Oklahoma. Oklahoma Anthrop. Soc. Newsletter, vol. 5, No. 6, p. 2.

1958. Notes and news—Harlan site excavations. Oklahoma Anthrop. Soc. Newsletter, vol. 7, No. 3, pp. 1–2.

1958. Archeological investigations at the Boat Dock site, Ma–1, in the Lake Texoma area, Marshall County, Oklahoma. Oklahoma Anthrop. Soc. Bull. VI, pp. 37–48.

1958. Radiocarbon dates from Oklahoma. Oklahoma Anthrop. Soc. Newsletter, vol. 7, No. 3, pp. 3–4.

1959. Radiocarbon dates from Oklahoma sites. Oklahoma Anthrop. Soc. Newsletter, vol. 8, No. 4, pp. 2–3.

Bell, Robert E., and Baerreis, David A.

1951. A survey of Oklahoma archeology. Bull. Texas Archeol. and Paleont. Soc., vol. 22, pp. 7–100. (General study which contains information obtained by salvage program.)

Bell, Robert E., and Dale, Charlene.

1953. The Morris site, Ck–39, Cherokee County, Oklahoma. Bull. Texas Archeol. and Paleont. Soc., vol 24, pp. 69–140.

Bell, Robert E., and Fraser, Richard.

1952. Archeological discoveries at the Morris site, Cherokee County, Oklahoma. Chronicles of Oklahoma, vol. 30, No. 2, pp. 216–235.

BIRKBY, WALTER H.

1962. A preliminary report on the dentition of the skeletal population of the Sully site. Plains Anthrop., vol. 7, No. 16, p. 79.

BLISS, WESLEY L.

1949. Archeological reconnaissance in Wyoming and Montana, 1946–1947. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 7–12.

1949. Early Man in the Northwestern Plains. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 121–126.

1950. Birdshead Cave, a stratified site in the Wind River Basin, Wyoming. Amer. Antiq., vol. 15, No. 3, pp. 187–196.

BRAY, ROBERT T.

1956. Some outstanding finds from Table Rock Reservoir area. Missouri Archeol. Soc. Newsletter, No. 99, pp. 5–7.

BRETERNIRZ, DAVID A.

1957. Heltagito rock shelter (NA6380). Plateau, vol. 30, No. 1, pp. 1–16. Flagstaff.

1957. A brief archeological survey of the Lower Gila River. Kiva, vol. 22, Nos. 2–3. Tucson.

BREW, J. O., and OTHERS.

1947. Symposium on river valley archeology. Amer. Antiq., vol. 12, No. 4, pp. 209–225.

BRUES, ALICE M.

1959. Skeletal material from the Morris site, Ck–39. Bull. Oklahoma Anthrop. Soc., vol. 7, pp. 63–70.

BUCK, ARTHUR DEWEY, JR.

1959. The Custer Focus of the Southern Plains. Bull. Oklahoma Anthrop. Soc., vol. 7, pp. 1–32.

BULLEN, RIPLEY P.

1950. An archeological survey of the Chattahoochee River Valley in Florida. Journ. Washington Acad. Sci., vol. 40, No. 4, pp. 101–125.

BURGH, ROBERT F.

1949. Archeological field work of the University of Colorado Museum in 1947. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 12–14.

BURROUGHS, JOHN.

1958. Last look at a forgotten civilization. Popular Mechanics, pp. 114–116. May.

BUTLER, B. ROBERT.

1955. The Wakemap Project—"Operation Last Chance." Mazama, vol. 37, No. 13, pp. 33–38.

1957. Dalles Reservoir prehistory: A preliminary analysis. Washington Archaeol., vol. 1, No. 8, pp. 4–7.

1958. Ash Cave (45 WW 61): A Preliminary Report. Washington Archaeol., vol. 2, No. 12, pp. 3–10.

CALDWELL, JOSEPH R.

1948. Palachacolas Town, Hampton County, South Carolina. Journ. Washington Acad. Sci., vol. 38, No. 10, pp. 321–324.

CALDWELL, JOSEPH R.—Continued
1950. A preliminary report on excavations in the Allatoona Reservoir. Early Georgia, vol. 1, No. 1, pp. 5–22.
1955. Cherokee pottery from northern Georgia. Amer. Antiq., vol. 20, No. 3, pp. 277–280.
1958. Trend and tradition in the prehistory of the eastern United States. Mem. No. 88, Amer. Anthrop. Assoc. Sci. Pap., vol. 10; Amer. Anthrop., vol. 60, No. 6, pt. 2.

CALDWELL, JOSEPH R.; THOMPSON, CHARLES E.; and CALDWELL, SHEILA K.
1952. The Booger Bottom mound: A Forsyth Period site in Hall County, Georgia. Amer. Antiq., vol. 17, No. 4, pp. 319–328.

CALDWELL, SHEILA KELLY.
1950. Reconstruction of the Woodstock Fort. Early Georgia, vol. 1, No. 2, pp. 22–30.

CALDWELL, WARREN W.
1956. The archeology of Wakemap: A stratified site near The Dalles of the Columbia. Abs., microfilmed, Publ. No. 17, 119, University Microfilms, Ann Arbor.
1957. Cultural traditions in the Columbia Plateau and Southern Northwest Coast. Abs., Proc. Nebraska Acad. Sci., p. 4, April.
1957. Archeological salvage in the Missouri Basin. Progress, Missouri River Basin. Interior Missouri Basin Field Committee, October–December, pp. 47–55. Billings, Mont.
1958. Important archeological discoveries in the Arkansas Valley. Ozarks Mountaineer, vol. 6, No. 8, p. 7.
1960. The Black Partizan site (39LM218), Big Bend Reservoir, South Dakota: A preliminary report. Plains Anthrop., vol. 5, No. 10, pp. 53–57.
1960. Firearms and related materials from Ft. Pierre II (39ST217), Oahe Reservoir, South Dakota. Missouri Archaeol., vol. 22, December. Columbia.
1961. Excavations at certain La Roche and Thomas Riggs sites in the Big Bend and Oahe Reservoirs, 1960. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 57.

CALDWELL, WARREN W.; MCNUTT, CHARLES H.; and SMITH, G. HUBERT.
1960. Fort Randall Reservoir. Corps of Engineers, Omaha, Nebraska, Spec. Publ. December.

CASON, JOE F.
1952. Report on archeological salvage in Falcon Reservoir, season of 1952. Bull. Texas Archeol. and Paleont. Soc., vol. 23, pp. 218–259.

CHAMPE, JOHN L.
1949. White Cat Village. Amer. Antiq., vol. 14, No. 4, pt. 1, pp. 285–292.

CHAPMAN, CARL H.
1949. Archeological field work in Missouri, 1946–1947. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 17–19.
1954. Preliminary salvage archeology in the Pomme de Terre Reservoir area, Missouri. Missouri Archaeol., vol. 16, Nos. 3–4. Columbia.

CHAPMAN, CARL H., and BRAY, ROBERT T.
1956. Preliminary salvage archaeology in the Table Rock Reservoir area, Missouri. Missouri Archaeol., vol. 18, Nos. 1–2. Columbia.

CHAPMAN, CARL H., ET AL.

1957. Table Rock salvage archeology. *In* A report of progress, archeological research by the University of Missouri, 1955–1956. Special Publ. Missouri Archeol. Soc., February, pp. 5–37. Columbia.

CHAPMAN, CARL H.; MAXWELL, THOMAS J., JR.; and KOZLOVICH, EUGENE.

1951. A preliminary archeological survey of the Table Rock Reservoir area, Stone County, Missouri. Missouri Archeol., vol. 13, No. 2, pp. 8–38. Columbia.

COALE, GEORGE L.

1956. Archeological survey of the Mt. Sheep and Pleasant Valley Reservoirs. Davidson Journ. Anthrop., vol. 2, No. 1, pp. 1–27.

COOGAN, ALAN H., and IRVING, WM. N.

1959. Late Pleistocene and recent Missouri River terraces in the Big Bend Reservoir, South Dakota. Abs., Iowa Acad. Sci., vol. 66, pp. 317–327.

COOLEY, MAURICE E.

1958. Physiography of the Glen-San Juan Canyon area, pt. 1. Mus. Northern Arizona, Plateau, vol. 31, No. 2, pp. 21–33. Flagstaff.

1958. Physiography of the Glen-San Juan Canyon area, pt. 2. Mus. Northern Arizona, Plateau, vol. 31, No. 3, pp. 49–60. Flagstaff.

COOPER, PAUL L.

1949. Recent investigation in Fort Randall and Oahe Reservoirs, South Dakota. Amer. Antiq., vol. 14, No. 4, pt. 1, pp. 300–311.

1949. An archeological survey of the Fort Randall Reservoir, South Dakota. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab Anthrop., Univ. Nebraska, pp. 19–20.

1955. The archeological and paleontological salvage program in the Missouri Basin, 1950–1951. Smithsonian Misc. Coll., vol. 126, No. 2.

CORBETT, JOHN M.

1949. Salvage archeology in river basins. Planning and Civic Comment, Quart. Amer. Planning and Civic Assoc., July–Sept.

1954. New dates from old data. Reclamation Era, vol. 40, No. 3, pp. 56–58.

CRAMPTON, C. GREGORY.

1959. Outline history of the Glen Canyon region, 1776–1922. Univ. Utah, Anthrop. Pap. No. 42.

CREER, LELAND HARGROVE.

1958. Mormon towns in the region of the Colorado. Univ. Utah, Anthrop. Pap. No. 32.

1958. The activities of Jacob Hamblin in the region of the Colorado. Univ. Utah, Anthrop. Pap. No. 33.

CRESSMAN, L. S.

1960. Cultural sequences at The Dalles, Oregon. Trans. Amer. Philos. Soc., vol. 50, pt. 10. December.

CRESSMAN, L. S.; COLE, DAVID L.; DAVIS, WILBUR A.; NEWMAN, THOMAS M.; and SCHEANS, DANIEL J.

1959. Cultural sequences at The Dalles, Oregon. Univ. Oregon.

CUMMINGS, THOMAS S.

1953. A preliminary report on the Blue Stone Focus, White Rock Aspect. Abs. Proc. Nebraska Acad. Sci., May.

DANSON, EDWARD B.
1958. The Glen Canyon Project. Plateau, vol. 30, No. 3, pp. 75–78. Flagstaff.

DAUGHERTY, RICHARD D.
1952. Archeological investigations in O'Sullivan Reservoir, Grant County, Washington. Amer. Antiq., vol. 17, No. 4, pp. 374–383.
1956. Archeology of the Lind Coulee Site, Washington. Proc. Amer. Philos. Soc., vol. 100, No. 3, pp. 224–278.
1956. An archeological survey of Rocky Reach Reservoir. Northwest Archeology Number, Research Stud. State College of Washington, vol, 24, No. 1, pp. 1–16.
1959. Early Man in Washington (Archeology of Lind Coulee Site). Div. Mines and Geol., Inf. Circ. No. 32.

DAVIS, E. MOTT.
1950. The present status of the study of "Early Man" in Nebraska. Abs. Proc. Nebraska Acad. Sci., May.
1951. "Early Man" sites in the Medicine Creek Reservoir area. Abs. Proc. Nebraska Acad. Sci., April.
1953. Early human occupation of the Plains area. Abs. Proc. Nebraska Acad. Sci., May.
1953. Recent data from two paleo-Indian sites on Medicine Creek, Nebraska. Amer. Antiq., vol. 18, No. 4, pp. 380–386.
1954. The Bridger Basin, Wyoming: An area of archeological promise. Abs. Proc. Nebraska Acad. Sci., April.
1956. Archeological survey of the Big Sandy Reservoir area, southwestern Wyoming. Notebook No. 2, Lab. Anthrop. Univ. Nebraska, Lincoln.
1961. Archeological sequence at the Ferrell's Bridge Reservoir, northeastern Texas. Plains Anthrop., vol., 6, No. 12, pt. 1, p. 61.
1962. Archeological salvage investigation of the Harling Mound in Fannin County, Texas. Year-Book of the Amer. Philos. Soc., pp. 487–489.

DAVIS, E. MOTT, and SCHULTZ, C. BERTRAND.
1952. The archeological and paleontological salvage program at the Medicine Creek Reservoir, Frontier County, Nebraska. Science, vol. 115, No. 2985, pp. 288–290.

DAVIS, HESTER A.
1961. 1960 fieldwork in Beaver Reservoir, Arkansas. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 72.

DAVIS, WILLIAM A., and DAVIS, E. MOTT.
1960. The Jake Martin site: An Archaic site in the Ferrell's Bridge Reservoir area, Northeastern Texas. Univ. Texas, Archeol. Ser., No. 3.

DE BAILLOU, CLEMENS.
1962. Archeological salvage in the Morgan Falls Basin. Univ. Georgia Lab. Archeol. Ser., No. 4, pp. 1–18.

DEJARNETTE, DAVID L., and HANSEN, ASAEL T.
1960. The archeology of the Childersburg site, Alabama. Florida State Univ. Notes Anthrop., No. 6.

DIBBLE, CHARLES E.
1959. Ecological studies of the flora and fauna in Glen Canyon. Univ. Utah, Anthrop. Pap., No. 40.

DIBBLE, DAVID S., and DAY, KENT C.

1962. A preliminary survey of the Fontenelle Reservoir, Wyoming. Univ. Utah. Anthrop. Pap., No. 58. (Upper Colorado Ser., No. 7).

DI PESO, CHARLES C.

1953. The Sobaipuri Indians of the Upper San Pedro River Valley, Southeastern Arizona. The Amerind Foundation, Inc., Dragoon, Ariz., No. 6.

DITTERT, ALFRED E., JR.

1957. The salvage archeology program is resumed at the Navajo Dam. El Palacio, vol. 64, Nos. 7–8, pp. 245–246. Santa Fe.

1958. Salvage archeology and the Navajo Project: A progress report. El Palacio, vol. 65, No. 2, pp. 61–72. Santa Fe.

1958. Recent developments in Navajo project archeology. El Palacio, vol. 65, No. 6, pp. 201–211. Santa Fe.

DITTERT, ALFRED E., JR.; HESTER, JIM J.; and EDDY, FRANK W.

1961. An archaeological survey of the Navajo Reservoir district Northwestern Mexico. School Amer. Res. and Mus. New Mexico, No. 23. Santa Fe.

DRAGOO, DON W.

1951. Archeological survey of Shelby County, Indiana. Indiana Hist. Bur., Indianapolis.

DUFFIELD, LATHEL F.

1962. Archeology of the Sanford Reservoir in the Texas Panhandle. Plains Anthrop., vol. 7, No. 16, p. 79.

DUFFIELD, LATHEL F., and JELKS, EDWARD B.

1961. The Pearson site: A historic Indian site at Iron Bridge Reservoir, Rains County, Texas. Univ. Texas, Archeol. Ser., No. 4.

EVANS, OREN F.

1958. Analysis of flint materials from the Lee and Lacy sites. Oklahoma Archeol. Soc., Newsletter, vol. 6, No. 7, pp. 2–3. Norman.

FAIRBANKS, CHARLES H.

1954. 1953 excavations at Site 9HL64, Buford Reservoir, Georgia. Florida State Univ. Stud. Anthrop., No. 16, pp. 1–25.

FENENGA, FRANKLIN.

1952. The archeology of the Slick Rock Village, Tulare County, California. Amer. Antiq., vol. 17, No. 4, pp. 339–347.

1953. Rediscovering the past in the Missouri Basin. Progress, Missouri River Basin, Interior Missouri Basin Field Committee, June, pp. 202–209. Billings, Mont.

1953. The ice-glider game, an 18th century innovation in northern Plains culture. Abs. Proc. Nebraska Acad. Sci., May.

1954. The interdependence of archeology and ethnology as illustrated by the ice-glider game of the Northern Plains. Plains Anthrop., No. 1, pp. 31–38. May.

FLOWERS, SEVILLE, ET AL.

1960. Ecological studies of the flora and fauna of Flaming Gorge Reservoir Basin, Utah and Wyoming. Univ. Utah, Anthrop. Pap., No. 48 (Upper Colorado Series No. 3).

GAINES, XERPHA M.

1957. Plants in Glen Canyon. Mus. Northern Arizona, Plateau, vol. 30, No. 2, pp. 31–34. Flagstaff.

GANT, ROBERT.

1962. The Big Bend burials, 39BF221, Buffalo County, South Dakota. Museum News, W. H. Over Museum, State Univ. South Dakota, vol. 23, Nos. 4–5, pp. 3–7.

GARRETT, JOHN W.

1952. Preliminary investigations of an aboriginal occupation site near Sanish, North Dakota. Montana State Univ. Anthrop. and Sociol. Pap., No. 13.

GARTH, THOMAS R.

1951. Historic sites in the Fort Randall Reservoir area. Abs. Proc. Nebraska Acad. Sci. April.

GILBERT, ELIZABETH X.

1961. A pithouse village on the San Juan River, N. Mex. Southwestern Lore, vol. 27, No. 1, pp. 9–16.

GROVE, FRED.

1949. Archeologists uncover real Sooners. Univ. Oklahoma News of the Month, vol. 2, No. 3, pp. 2–3.

GUNKEL, ALEXANDER.

1961. The archeology of the Rocky Reach Reservoir. (A comparative cultural analysis of four archeological sites in the Rocky Reach Reservoir region, Washington.) Washington State Univ., Dept. Sociol. and Anthrop.

GUNNERSON, JAMES H.

1958. Archeological survey of the Kaiparowitz Plateau. A preliminary report. Utah Archeology Newsletter, vol. 4, No. 3, pp. 9–20. Salt Lake City.

1959. 1957 excavations, Glen Canyon area. Univ. Utah, Anthrop. Pap., No. 43.

HANDLEY, CHARLES O., JR.

1953. A new South Dakota locality for the kangaroo rat, *dipodomys*. Journ. Mammalogy, vol. 34, No. 2, p. 264. May.

HARRIS, R. K.

1951. Plainview point from site 18C7–3. The Record, Dallas Archeol. Soc., vol. 10, No. 1, p. 2.

HASKELL, HORACE S.

1958. Flowering plants in Glen Canyon—late summer aspect. Mus. Northern Arizona, Plateau, vol. 31, No. 1, pp. 1–3. Flagstaff.

HEDDEN, MARK.

1958. Surface printing as a means of recording petroglyphs. Amer. Antiq., vol. 23, No. 4, pt. 1, pp. 435–439. April.

HELDMAN, DONALD P.

1961. Archaeological work within the proposed Joanna Reservoir. Plains Anthrop., vol. 6, No. 12, pt. 2, pp. 110–111.

HENNING, DALE R.

1961. Archaeological research in the proposed Joanna Reservoir, Missouri. Missouri Archaeol., vol. 23, pp. 133–183.

1962. The Joanna Reservoir. Plains Anthrop., vol. 7, No. 16, pp. 84–86.

HENSLEY, G. S.

1952. Story of first midwest farmers unfolds in White River Valley. Missouri Farmer, pp. 6–9. September. Columbia.

HEWES, GORDON W.

1949. The 1947 summer field session in archeology, University of North Dakota. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 21–24.

1949. Pottery from the sites excavated by the 1947 North Dakota field session. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 58–67.

1949. Burial mounds in the Baldhill area, North Dakota. Amer. Antiq., vol. 14, No. 4, pp. 322–328.

1950. Sheyenne River. Proc. Sixth Plains Archeol. Conf. (1948), Univ. Utah, Anthrop. Pap., No. 11, p. 9.

HOCKMAN, STEVEN.

1952. The history of Fort Sully (South Dakota). South Dakota Hist. Coll., vol. 26, pp. 222–227.

HOLDER, PRESTON, and WIKE, JOYCE.

1949. The frontier culture complex, a preliminary report on a prehistoric hunter's camp in southwestern Nebraska. Amer. Antiq., vol. 14, No. 4, pp. 260–266.

1950. The Allen site (FT–50): Archeological evidence of an early hunter's camp on Medicine Creek, Frontier County, Nebraska. Proc. Sixth Plains Archeol. Conf. (1948), Univ. Utah, Anthrop. Pap., No. 11, pp. 105–107.

HOWARD, JAMES H.

1962. Report of the investigation of the Huff site, 32MO11, Morton County, North Dakota, 1959. Univ. North Dakota, Anthrop. Pap., No. 2.

HOWARD, LYNN E.

1951. Archeological survey in the Bull Shoals region of Arkansas. Missouri Archaeol., vol. 13, No. 1, pp. 3–17. Columbia.

HUGHES, JACK T.

1949. Investigations in western South Dakota and northeastern Wyoming. Amer. Antiq., vol. 14, No. 4, pp. 266–277.

1950. An experiment in relative dating of archeological remains by stream terraces. Bull. Texas Archeol. and Paleont. Soc., vol. 21, pp. 97–104.

HURT, AMY PASSMORE.

1958. The race for treasure. Denver Post, Sunday Empire, Mag., Aug. 31, 1958.

HURT, WESLEY R., JR.

1951. Report of the investigations of the Swanson site, 39BR16, Brule County, South Dakota, 1950. South Dakota Archaeol. Comm., Archaeol. Stud., Circ. No. 6.

1952. Report of the investigation of the Scalp Creek site, 39GR1, and the Ellis Creek site, 39GR2, South Dakota, 1941, 1951. South Dakota Archaeol. Comm., Archaeol. Stud., Circ. No. 4.

1952. House types of the Over Focus, South Dakota. Plains Archeol. Conf. News Letter, vol. 4, No. 4 pp. 51–52.

1953. Report of the investigation of the Thomas Riggs site, 39HU1, Hughes County, South Dakota, 1952. South Dakota Archaeol. Comm., Archaeol. Stud., Circ. No. 5.

HURT, WESLEY R., JR.—Continued

1954. Report of the investigations of the Spotted Bear site, 39HU26, and the Cottonwood site, 39HU43, Hughes County, South Dakota, 1953. South Dakota Archaeol. Comm., Archaeol. Stud., Circ. No. 6.

IRVING, WILLIAM N.

1958. The chronology of early remains at the Medicine Crow site, 39BF2, South Dakota. Abs. Proc. Nebraska Acad. Sci., p. 3. April.

JELKS, EDWARD B.

1952. The River Basin Surveys archeological program in Texas. Texas Journ. Sci., vol. 4, No. 2, pp. 131–138.

1953. Excavations at the Blum rockshelter. Bull. Texas Archeol. and Paleont. Soc., vol. 24, pp. 189–207.

1959. Archeologists add new data on Texas' past. Univ. Texas, Engineering-Science News, vol. 7, No. 1, pp. 1–4.

1962. The Kyle site, a stratified Central Texas Aspect site in Hill County, Texas. Univ. Texas Archaeol. Ser., No. 5.

JELKS, EDWARD B. and TUNNELL, CURTIS D.

1959. The Harroun Site: A Fulton Aspect Component of the Caddoan Area, Upshur County, Texas. Univ. Texas Archaeol. Ser., No. 2.

JENNINGS, JESSE D.

1947. An atlas of archeological sites within the reservoirs located in the Missouri River Basin. U.S. Dept. Interior, Reg. Two, Nat. Park Serv. Missouri Basin Recreation Survey. Omaha.

1948. Plainsmen of the past, a review of the prehistory of the Plains. U.S. Dept. Interior, Reg. Two, Nat. Park Serv., Missouri Basin Recreation Survey. Omaha.

1948. Saving a segment of history. Reclamation Era, vol. 34, No. 10, pp. 192–193. October.

1955. The archeology of the Plains: an assessment. U.S. Dept. Interior, Reg. Two., Nat. Park Serv. and Univ. Utah, Dept. Anthrop. (Supersedes Jennings, 1948.)

1961. Salvage and scholarship. Northwestern Univ. Tri-Quart., vol. 3, No. 2, pp. 43–47. Winter.

JOHNSON, FREDERICK.

1951. The Inter-Agency Archeological Salvage Program in the United States. Archaeology, pp. 25–40. Spring.

JOHNSON, LEROY, JR., and JELKS, EDWARD B.

1958. The Tawakoni-Ysconi village, 1760: A study in archeological site identification. Texas Journ. Sci., vol. 10, No. 4. December.

KEEFE, JIM, and SAULTS, DAN.

1953. Out of the dust of yesterday. Missouri Conservationist, vol. 14, No. 1. January.

KELLAR, JAMES H., KELLY, A. R., and MCMICHAEL, EDWARD V.

1962. The Mandeville site in southwest Georgia. Amer. Antiq., vol. 27, No. 3, pp. 336–355.

KELLER, CHARLES M.

1961. Activities in the Kasinger Bluff Reservoir. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 67.

KELLY, A. R., and NEITZEL, R. S.

1961. The Chauga site in Oconee County, South Carolina. Univ. Georgia Lab. Archaeol. Ser., Rep. No. 3.

KIEHL, MARY.

1953. The Glen Elder and White Rock sites in north central Kansas. Abs. Proc. Nebraska Acad. Sci. May.

KIVETT, MARVIN F.

1948. Mechanized archeology. Plains Archeol. Conf. News Letter, vol. 1, No. 4, pp. 16–17.

1949. Archeological investigations in Medicine Creek Reservoir, Nebraska. Amer. Antiq., vol. 14, No. 4, pp. 278–284.

1949. An archeological survey of the Garrison and Baldhill Reservoirs. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 24–25.

1950. An Archaic horizon? Plains Archeol. Conf. News Letter, vol. 3, No. 4, pp. 4–7.

1952. Woodland sites in Nebraska. Nebraska State Hist. Soc., Publ. in Anthrop., No. 1. (While some of the material in this report was obtained during earlier investigations, a considerable portion of the publication is based on the results of salvage projects.)

1954. Notes on the burial patterns of the Central Plains Indians. Abs. Proc. Nebraska Acad. Sci. April.

1962. Archaeological field report, 1961. Plains Anthrop., vol. 7, No. 16, p. 77.

KIVETT, MARVIN F., and HILL, A. T.

1949. Archeological investigations along Medicine Creek. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 25–26.

LEHMER, DONALD J.

1951. Pottery types from the Dodd site, Oahe Reservoir, South Dakota. Plains Archeol. Conf. News Letter, vol. 4, No. 2, pp. 1–15.

1952. The Turkey Bluff Focus of the Fulton Aspect. Amer. Antiq., vol. 17, No. 4, pp. 313–318.

1952. The Fort Pierre Branch, central South Dakota. Amer. Antiq., vol. 17, No. 4, pp. 329–336.

1952. Animal bone and Plains archeology. Plains Archeol. Conf. News Letter, vol. 4, No. 4, pp. 53–55.

1954. The sedentary horizon of the northern Plains. Southwestern Journ. Anthrop., vol. 10, No. 2, pp. 139–159.

LINDSAY, ALEXANDER J., Jr.

1961. The Beaver Creek agricultural community on the San Juan River, Utah. Amer. Antiq., vol. 27, No. 2, pp. 174–187. October.

LIPE, WILLIAM D.

1960. 1958 excavations, Glen Canyon area. With appendices by Christy G. Turner II, Lyndon L. Hargrave. Univ. Utah, Anthrop. Pap., No. 44. (Glen Canyon Ser., No. 11).

LIPE, WILLIAM, and FOWLER, DON.

1958. Archeological excavations and survey in Glen Canyon: Preliminary reports of 1958 work. Utah Archeol., vol. 4, No. 4, pp. 4–16. Salt Lake City.

LIPE, WILLIAM D.; SHARROCK, FLOYD W.; DIBBLE, DAVID S.; and ANDERSON, KEITH M.

1960. 1959 excavations, Glen Canyon area. With appendix by Christy G. Turner II, and addendum by Dee Ann Suhm. Univ. Utah, Anthrop. Pap., No. 49. (Glen Canyon Ser. No. 13).

LISTER, ROBERT H.

1957. Salvage archeology in the Southwest. Southwestern Lore, vol. 23, No. 3, pp. 34–35. Boulder.

1957. The Glen Canyon survey in 1957. Univ. Utah, Anthrop. Pap. No. 30.

1958. A preliminary note on excavations at the Coombs site, Boulder, Utah. Utah Archeol.: A Newsletter, vol. 4, No. 3, pp. 4–8. Salt Lake City.

1959. The Coombs site, with a chapter, Pottery, by Florence C. Lister. Univ. Utah, Anthrop. Pap., No. 41.

LISTER, ROBERT H.; AMBLER, J. RICHARD; and LISTER, FLORENCE L.

1960. The Coombs site. Part 2. Univ. Utah, Anthrop. Pap. No. 41.

LISTER, ROBERT H., and LISTER, FLORENCE C.

1961. The Coombs site. Part 3, summary and conclusions. Univ. Utah, Anthrop. Pap., No. 41, October.

McDOUGALL, WALTER B.

1959. Plants of the Glen Canyon area in the Herbarium at the Museum of Northern Arizona (mimeographed).

McKUSICK, M. B., and WATSON, R. S.

1959. Grinding implements from Vaquero Reservoir, San Luis Obispo and Santa Barbara Counties. Univ. California, Ann. Rep., Archeol. Surv., Dept. Anthrop.-Sociol., pp. 13–14. Los Angeles.

McMICHAEL, EDWARD V., and KELLAR, JAMES H.

1960. Archeological salvage in the Oliver Basin. Univ. Georgia Lab. Archeol. Ser., Rep. No. 2.

McNUTT, CHARLES H.

1958. La Roche ware and relative chronology. Abs., Proc. Nebraska Acad. Sci., April, pp. 3–4.

McNUTT, CHARLES H., and WHEELER, RICHARD P.

1959. Bibliography of primary sources for radiocarbon dates. Amer. Antiq., vol. 24, No. 3, pp. 323–324.

MALOUF, CARLING.

1950. The archeology of the Canyon Ferry region, Montana, 1950. Univ. Montana. Anthrop. and Sociol. Pap., No. 11.

1951. Archeological studies of aboriginal occupation sites in northwestern North Dakota. Montana State Univ. Anthrop. and Sociol. Pap., No. 7.

MARSHALL, RICHARD.

1962. Archaeological survey of Jasper County, Missouri. Plains Anthrop., vol. 7, No. 16, pp. 82–84.

MATTES, MERRILL, J.

1947. Historic sites in Missouri Valley reservoir areas. Nebraska Hist., vol. 28, No. 3, pp. 1–15.

1949. Historic sites in the Fort Randall Reservoir area. South Dakota Hist. Coll., vol. 24.

1952. Revival at old Fort Randall. Military Engineer, vol. 44, No. 298, pp. 88–93.

1952. Salvaging Missouri Valley history. The Westerners Brand Book, vol. 9, No. 3, pp. 17–19, 22–24.

1954. Under the wide Missouri [historic sites in Missouri Basin reservoirs]. North Dakota Hist., vol. 21, No. 4, pp. 146–167.

MATTISON, RAY H.

1951. Old Fort Stevenson, a typical Missouri River military post. North Dakota Hist., vol. 18, Nos. 2–3, pp. 2–40.

1954. The Army post on the northern Plains, 1865–1885. Nebraska Hist., vol. 35, No. 1, pp. 1–27.

1954. Report on historical aspects of the Oahe Reservoir area, Missouri River, South and North Dakota. South Dakota Hist. Coll. and Rep., vol. 27.

1955. The Indian reservation system on the upper Missouri, 1865–1890, Nebraska Hist., vol. 36, No. 3, pp. 141–172.

1955. Report on historic sites in the Garrison Reservoir area, Missouri River [North Dakota]. North Dakota Hist., vol. 22, Nos. 1–2, pp. 5–73.

1956. The military frontier on the upper Missouri. Nebraska Hist., vol. 37, No. 3, pp. 159–182.

1956. Report on Historic sites adjacent to the Missouri River, between Big Sioux River and Fort Randall Dam, including those in the Gavins Point Reservoir area (South Dakota and Nebraska). South Dakota Hist. Coll., vol. 28, pp. 22–98.

MAYER-OAKES, WILLIAM J.

1953. An archeological survey of the proposed Shenango River Reservoir area in Ohio and Pennsylvania. Ann. Carnegie Mus., vol. 33, art. 3, pp. 115–124, Anthrop. Ser. No. 1.

MELEEN, E. E.

1949. A preliminary report on the Thomas Riggs village site. Amer. Antiq., vol. 14, No. 4, pt. 1, pp. 310–321. (This paper includes material from investigations in the Oahe Reservoir area prior to the salvage program but also reports on work done in 1947.)

METCALF, GEORGE.

1956. Additional data from the Dodd and Phillips Ranch sites, South Dakota. Amer. Antiq., vol. 21, No. 3, pp. 305–309.

MILLER, CARL F.

1948. Early cultural manifestations exposed by the archeological survey of the Buggs Island Reservoir in southern Virginia and northern North Carolina. Journ. Washington Acad. Sci., vol. 38, No. 12, pp. 397–399.

1949. The Lake Spring site, Columbia County, Georgia. Amer. Antiq., vol. 15, No. 1, pp. 38–51.

1949. Appraisal of the archeological resources of the Buggs Island Reservoir in southern Virginia and northern North Carolina. Quart. Bull., Archeol. Soc. Virginia, vol. 4, No. 1.

1949. Early cultural manifestations exposed by the archeological survey of the Buggs Island Reservoir in southern Virginia and northern North Carolina. Quart. Bull., Archeol. Soc. Virginia, vol. 4, No. 2.

1950. Early cultural horizons in the southeastern United States. Amer. Antiq., vol. 15, No. 4, pp. 273–288. (A general article but containing data collected during survey work.)

1950. An analysis and interpretation of the ceramic remains from site 38 Mc6 near Clarks Hill, South Carolina. Journ. Washington Acad. Sci., vol. 40, No. 11, pp. 350–354.

1956. Burin types from southern Virginia: A preliminary statement. Amer. Antiq., vol. 21, No. 3, p. 311.

Miller, Carl F.—Continued

1959. Physical structure of Rock Mound at 9ST3, Georgia. Southern Indian Stud., Archeol. Soc. North Carolina and Res. Lab. Anthrop., Univ. North Carolina, vol. 11, pp. 16–19.

Miller, E. O., and Jelks, Edward B.

1952. Archeological excavations at the Belton Reservoir, Coryell County, Texas. Bull. Texas Archeol. and Paleont. Soc., vol. 23, pp. 168–217.

Miller, Loye H.

1957. Bird remains from an Oregon Indian midden. The Condor, vol. 59, No. 1, pp. 59–63. January–February.

Miller, William C., and Breternitz, David A.

1958. 1957 Navajo Canyon survey, preliminary report. Plateau, vol. 30, No. 3, pp. 72–74. Flagstaff.

1959. 1958 Navajo Canyon survey, preliminary report. Plateau, vol. 31, No. 1, pp. 3–7. Flagstaff.

Mills, John E., and Osborne, Carolyn.

1952. Material culture of an Upper Coulee rockshelter. Amer. Antiq., vol. 17, No. 4, pp. 352–359.

Mosiman, James, and Rabb, George B.

1952. The herpetology of Tiber Reservoir area, Montana. Copeia, No. 1, pp. 23–27. June 2.

Mulloy, William.

1954. The McKean site in northeastern Wyoming. Southwestern Journ. Anthrop., vol. 10, No. 4, pp. 432–460.

Neuman, Robert W.

1957. Supplementary data on the White Rock Aspect. Abs., Proc. Nebraska Acad. Sci., pp. 3–4. April.

1960. The Truman Mound site, Big Bend Reservoir area, South Dakota. Amer. Antiq., vol. 26, No. 1, pp. 78–92. July.

1961. Excavations at four mound sites in the Oahe Reservoir. Plains Anthrop., vol. 6, No. 12, pt. 1, pp. 57–58.

1962. Field season, 1961. Plains Anthrop., vol. 7, No. 16, p. 81.

1962. Historic Indian burials, Fort Thompson, South Dakota. Plains Anthrop., vol. 7, No. 16, p. 95.

Osborne, Douglas.

1950. An archeological survey of the Benham Falls Reservoir, Oregon. Amer. Antiq., vol. 16, No. 2, pp. 112–120.

1953. Archeological occurrences of pronghorn antelope, bison, and horse in the Columbia Plateau. Sci. Month., vol. 77, No. 5, pp. 260–269.

Osborne, Douglas; Caldwell, Warren C.; and Crabtree, Robert H.

1956. The problem of Northwest Coastal-Interior relationships as seen from Seattle. Amer. Antiq., vol. 22, No. 2, pp. 117–128.

Osborne, Douglas, and Crabtree, Robert H.

1961. Two sites in the Upper McNary Reservoir. Tebiwa, Journ. Idaho State College Mus., vol. 4, No. 2, pp. 19–36.

Osborne, Douglas; Crabtree, Robert; and Bryan, Alan.

1952. Archeological investigations in the Chief Joseph Reservoir. Amer. Antiq., vol. 17, No. 4, pp. 360–373.

OSMUNDSON, JOHN, and HULSE, CHRISTOPHER.

1962. Preliminary report on an archeological survey of the Bruces Eddy Reservoir, north-central Idaho, 1961. Tebiwa, Journ. Idaho State College Mus., vol. 5, No. 1, pp. 11–29.

PECKHAM, STEWART.

1958. Salvage archeology in New Mexico, 1957–58: A partial report. El Palacio, vol. 65, No. 5, pp. 161–168. Santa Fe.

PENDERGAST, DAVID M., and MEIGHAN, CLEMENT W.

1959. The Greasy Creek site, Tulare County, Arizona. Univ. California, Ann. Rep. Archeol. Surv. Dept. Anthrop.-Sociol., pp. 1–9. Los Angeles.

PIERSON, LLOYD.

1957. A brief archeological reconnaissance of White Canyon, southeastern Utah. El Palacio, vol. 64, Nos. 7–8, pp. 222–230. Santa Fe.

PROCTOR, CHARLES C.

1953. Report of excavations in the Eufaula Reservoir. Bull. Oklahoma Anthrop. Soc., vol. 1, pp. 43–59.

PURDY, WILLIAM M.

1959. An outline of the history of the Flaming Gorge area. Univ. Utah Anthrop. Pap., No. 37.

ROBERTS, FRANK H. H., JR.

1948. A crisis in U.S. archeology. Sci. Amer., vol. 179, No. 6, pp. 12–17.

1952. River Basin Surveys: The first five years of the Inter-Agency Archeological and Paleontological Salvage Program. Ann. Rep. Smithsonian Inst. for 1951, pp. 351–383.

1955. The Inter-Agency Archeological and Paleontological Salvage Program in the United States. Pro Natura, vol. 2, pp. 213–218. (Series published by International Union for the Protection of Nature, Brussels.)

1955. The Inter-Agency Archeological and Paleontological Salvage Program. Missouri Archeol. Soc. News Letter No. 96, pp. 7–10, November.

RUDY, JACK R., and STIRLAND, ROBERT D.

1950. An archeological reconnaissance in Washington County, Utah. Univ. Utah, Anthrop. Pap., No. 9.

SCHOLTZ, JAMES A.

1962. Salvage archaeology in Kansas. Plains Anthrop., vol. 7, No. 16, p. 84.

SCHULTZ, C. BERTRAND, and FRANKFORTER, W. D.

1948. Early man. Amer. Antiq., vol. 13, No. 3, pp. 279–280.

1948. Preliminary report on the Lime Creek sites: new evidence of early man in southwestern Nebraska. Bull. Univ. Nebraska State Mus., vol. 3, No. 4, pt. 2.

1949. The Lime Creek sites. *In* Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 132–4.

SCHWARTZ, DOUGLAS W.

1961. The Tinsley Hill site. (A late prehistoric stone grave cemetery in Lyon County, Ky.) Univ. Kentucky, Stud. Anthrop., No. 1.

SEARS, WILLIAM H.

1950. Preliminary report on the excavation on an Etowah Valley site. Amer. Antiq., vol. 16, No. 2, pp. 137–142.

SHANE, RALPH M.

1956. A short history of Fort Berthold [Indian Reservation]. 22 pp. Fort Berthold Indian Agency, Newtown, N. Dak.

SHARROCK, FLOYD W.; ANDERSON, KEITH M.; FOWLER, DON D.; and DIBBLE, DAVID S.

1961. 1960 excavations, Glen Canyon area. Univ. Utah, Anthrop. Pap., No. 52, May. (With appendices by Don D. Fowler, and Christy G. Turner, II.)

SHARROCK, FLOYD W.; DIBBLE, DAVID S.; and ANDERSON, KEITH M.

1961. The Creeping Dune Irrigation site in Glen Canyon, Utah. Amer. Antiq., vol. 27, No. 2, pp. 188–202. October.

SHARROCK, FLOYD W., and KEANE, EDWARD A.

1962. Carnegie Museum collection from southeast Utah. Univ. Utah, Anthrop. Pap., No. 57. (Glen Canyon Ser., No. 160.)

SHINER, JOEL L.

1952. The 1950 excavations at site 45BN6, McNary Reservoir, Washington. Amer. Antiq., vol. 17, No. 4, pp. 348–351.

SHIPPEE, J. M.

1953. A Folsom fluted point from Marshall County, Kansas. Plains Archeol. Conf. News Letter, vol. 5, No. 4, p. 54.

SMITH, CARLYLE S.

1949. Archeological investigations in Ellsworth and Rice Counties, Kansas. Amer. Antiq., vol. 14, No. 4, pp. 292–300.

1949. Archeological research at the University of Kansas, 1946–1947. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 29–30.

1949. Field work in Kansas, 1949. Plains Archeol. Conf. News Letter, vol. 2, No. 4, pp. 5–6.

1950. Climate and archeology in Kansas. Proc. Sixth Plains Archeol. Conf. 1948, Univ. Utah, Anthrop. Pap., No. 11, pp. 98–99.

1951. Pottery types from the Talking Crow site, Fort Randall Reservoir, South Dakota. Plains Archeol. Conf. News Letter, vol. 4, No. 3, pp. 32–41.

1953. Digging up the Plains Indian's past. Univ. Kansas Alumni Bull. December.

1954. Cartridges and bullets from Fort Stevenson, North Dakota. Plains Anthrop., No. 1, pp. 25–29.

1955. An analysis of the firearms and related specimens from Like-a-Fishhook Village and Fort Berthold I. Plains Anthrop., No. 4, pp. 3–12.

1959. Reconstructing a Plains Indian earth lodge. *In* Robert F. Heizer, "The Archaeologist at Work," pp. 131–133. New York.

1959. The temporal relationships of coalescent village sites in Fort Randall Reservoir. Actas del XXXIII Congreso Internacional de Americanistas, tomo II, pp. 111–123, figs. 1–3. San Jose.

SMITH, G. HUBERT.

1953. Indian trade beads from Fort Berthold, North Dakota. Central Texas Archeol. No. 6. Waco.

1954. Excavations at Fort Stevenson, 1951. North Dakota Hist., vol. 21, No. 3, pp. 127–135. July.

1954. Archeological work at 32ML2 (Like-a-Fishhook Village and Fort Berthold), Garrison Reservoir area, North Dakota. Plains Anthrop., No. 2, pp. 27–32.

SMITH, G. HUBERT—Continued

1957. Archeological salvage at historic sites in the Missouri Basin. Progress, Missouri Basin Field Committee, pp. 39–50. January–March. Billings.

1957. The present status of research on early historic sites of the Missouri Basin. Abs., Proc. Nebraska Acad. Sci., p. 3. April.

1960. Historical archeology in Missouri Basin Reservoir areas: Current investigations. Plains Anthrop., vol. 5, No. 10, pp. 58–64.

1961. Historic sites in the Oahe and Big Bend Reservoir areas. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 57.

SMITH, JACK E.; LAFAVE, JACQUELINE M.; and WIRE, MARCIA V. V.

1961. Archeological resources of Vaquero Reservoir. Univ. California, Dept. Anthrop. and Sociol., Los Angeles.

SOLECKI, RALPH S.

1949. An archeological survey of two river basins in West Virginia. West Virginia Hist., vol. 10, No. 3, pp. 189–211, and No. 4, pp. 319–432.

1952. Photographing the past. Progress, Missouri River Basin, Interior Missouri Basin Field Committee, pp. 1–9. September. Billings.

1953. A Plainview point found in Marshall County, Kansas. Plains Archeol. Conf. News Letter, vol. 5, No. 4, pp. 52–53.

SPERRY, JAMES E., and KRAUSE, RICHARD A.

1962. 1961 excavations at the Leavenworth site, 39CO9. Plains Anthrop., vol. 7, No. 16, p. 80.

STALLARD, BRUCE.

1957. Report on talk by Jim Garner concerning removal of Nespelem Indian burials from Chief Joseph Reservoir. Washington Archeol., vol. 1, No. 8, p. 1.

STANTON, ROBERT B.

1961. The Hoskaninni Papers, mining in Glen Canyon, 1897–1902. Univ. Utah., Anthrop. Pap. No. 54 (Glen Canyon Ser. No. 15).

STEEN, CHARLIE R.

1956. The archeological salvage program today. Archaeol., vol 9, No. 3, pp. 175–181.

STEPHENSON, ROBERT L.

1947. Archeological survey of Whitney Basin. Bull. Texas Archeol. and Paleont. Soc., vol. 18, pp. 129–142.

1948. Archeological survey of McGee Bend Reservoir. Bull. Texas Archeol. and Paleont. Soc., vol. 19, pp. 57–73.

1949. A note on some large pits in certain sites near Dallas, Texas. Amer. Antiq., vol 15, No. 1, pp. 53–55.

1949. Archeological survey of the Lavon and Garza-Little Elm Reservoirs. Bull. Texas Archeol. and Paleont. Soc., vol. 20, pp. 21–62.

1949. A survey of the Whitney Basin in Hill and Bosque Counties, Texas. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 31–32.

1952. The Hogge Bridge site and the Wylie Focus. Amer. Antiq., vol. 17, No. 4, pp. 299–312.

1954. Salvage archeology. Bible Archeol. Digest, vol. 9, No. 2, pp. 2–11.

1954. Taxonomy and chronology in the Central Plains—Middle Missouri River area. Plains Anthrop., No. 1, pp. 15–21. May.

Stephenson, Robert L.—Continued

1954. The Stansbury site: An historic site in the Whitney Reservoir, Texas. Abs. Proc. Nebraska Acad. Sci. April.

1957. Some research problems emerging out of Missouri Basin salvage. Nebraska Acad. Sci., p. 4. April.

1958. The Missouri Basin chronology program. Abs. Proc. Nebraska Acad. Sci., p. 4. April.

1961. 1960 progress report, Missouri River Project. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 55.

1962. Three Smithsonian salvage sites. Plains Anthrop., vol. 7, No. 16, pp. 80–81.

Stoney, George.

1950. Georgia's archeologists before the camera. Early Georgia, vol. 1, No. 2, pp. 18–21.

Strong, Wm. Duncan; Johnson, Frederick; and Webb, William S.

1945. National archeological resources. Science, vol 102, No. 2637, p. 44. July 13.

Swanson, Earl H., Jr.; Touhy, Donald R.; and Bryan, Alan L.

1959. Archeological explorations in central and south Idaho, 1958. Idaho State College Mus., Occas. Pap., No. 2.

Treganza, Adan E.

1952. Archeological investigations in the Farmington Reservoir area in Stanislaus County, California. Univ. California Archaeol. Surv. Rep., No. 14.

1954. Salvage archeology in Nimbus and Redbank Reservoir areas, central California. Univ. California Archaeol. Surv. Rep., No. 26.

1958. Salvage archaeology in the Trinity Reservoir area, northern California. Univ. California Archaeol. Surv. Rep., No. 43, pt. 1.

1959. Salvage archaeology in the Trinity Reservoir area, northern California, 1958 field season. Univ. California Archaeol. Surv. Rep., No. 46.

Treganza, Adan E., and Heicksen, Martin H.

1960. Salvage archeology in the Whiskeytown Reservoir area and the Wintu Pumping Plant, Shasta County, California. San Francisco State College, Occas. Pap. Anthrop., No. 1.

Tuohy, Donald R., and Swanson, Earl H.

1960. Excavation at Rockshelter 10–AA–15, southwest Idaho. Tibiwa, Journ. Idaho State Coll. Mus., vol. 3, Nos. 1 and 2, pp. 20–24.

Wallace, William J.

1960. Archaeological resources of the Buena Vista Watershed, San Diego County, California. Univ. California, Ann. Rep., Archaeol. Surv., Dept. Anthrop.-Sociol., pp. 277–294. Los Angeles.

Weakly, Harry E.

1961. Current developments in Plains dendrochronology. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 59.

Weakly, Ward F.

1961. A site in the Fort Randall Reservoir, Brûle County, South Dakota. Plains Anthrop., vol. 6, No. 14, pp. 230–241.

1961. 1960 excavations at the Leavenworth site, 39CO9. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 58.

WEDEL, WALDO R.

1947. Prehistory and the Missouri Valley Development Program; summary report on the Missouri River Basin Archeological Survey in 1946. Smithsonian Misc. Coll., vol. 107, No. 6.

1947. The Missouri Basin Archeological Survey. Nebraska Hist., vol. 28, No. 1, pp. 32–40.

1948. Prehistory and the Missouri Valley Development Program: summary report on the Missouri River Basin Archeological Survey in 1947. Smithsonian Misc. Coll., vol. 111, No. 2.

1949. Some provisional correlations in Missouri Basin archeology. Amer. Antiq., vol. 14, No. 4, pt. 1, pp. 328–329.

1949. A summary of recent field work in central Plains archeology. Proc. Fifth Plains Conf. Archeol., Note Book No. 1, Lab. Anthrop., Univ. Nebraska, pp. 3–5.

1950. Missouri River Basin Survey 1948 season. Proc. Sixth Plains Archeol. Conf., Univ. Utah, Anthrop. Pap., No. 11, pp. 3–8.

1951. The use of earth-moving machinery in archeological excavations. *In* Essays on Archeological Methods, Univ. Michigan, Mus. Anthrop., Anthrop. Pap., No. 8, pp. 17–28.

1961. Historic man on the Great Plains. Univ. Oklahoma. (Contains information gathered by salvage operations).

WEDEL, WALDO R., and GRIFFENHAGEN, GEORGE B.

1954. An English balsam among the Dakota aborigines. Amer. Journ. Pharmacy, vol. 126, No. 12, pp. 409–415.

WEDEL, WALDO R., and KIVETT, MARVIN F.

1956. Additional data on the Woodruff Ossuary, Kansas. Amer. Antiq., vol. 21, No. 4, pp. 414–416.

WENDORF, FRED; LUEBBEN, RALPH A.; BRUGGE, DAVID; and SCHROEDER, ALBERT H., with appendices by IRENE EMERY; EARL H. MORRIS; and ERIK K. REED.

1953. Salvage archeology in the Chama Valley, New Mexico. Monogr. School Amer. Res., No. 17.

WHEAT, JOE BEN.

1947. Archeological survey of the Addicks Basin: A preliminary report. Bull. Texas Archeol. and Paleont. Soc., vol. 18, pp. 143–145.

WHEELER, RICHARD P.

1950. Archeological investigations in Angostura Reservoir, Cheyenne River Basin, South Dakota. Abs. Proc. Nebraska Acad. Sci. May.

1951. The archeology of the Boysen Reservoir, Fremont County, Wyoming. Abs. Proc. Nebraska Acad. Sci. April.

1952. A note on the McKean lanceolate point. Plains Archeol. Conf. News Letter, vol. 4, No. 4, pp. 45–50.

1952. Plains ceramic analysis: a check list of features and descriptive terms. Plains Archeol. Conf. News Letter, vol. 5, No. 2.

1953. The distribution, cultural relationships and chronology of mounds and earthworks in the Dakotas. Abs. Proc. Nebraska Acad. Sci. May.

1954. Selected projectile point types of the United States: II. Bull. Oklahoma Anthrop. Soc., vol. 2, pp. 1–6. March.

1954. Two new projectile point types: Duncan and Hanna points. Plains Anthrop., No. 1, pp. 7–14.

1954. Check list of Middle Missouri pottery wares, types, subtypes. Plains Anthrop., No. 2, pp. 3–21.

WHEELER, RICHARD P.—Continued

1954. New contributions to the archeology of Oahe Reservoir. Abs. Proc. Nebraska Acad. Sci. April.

1955. Recent archeological salvage operations in the Missouri Basin. Progress, Missouri River Basin, Interior Missouri Basin Field Committee, October–December, pp. 65–73.

1957. Archeological field data and their interpretation. Abs. Proc. Nebraska Acad. Sci., p. 4. April.

1958. A bibliography of the Indian archeology of the Central and Northern Plains. Abs. Proc. Nebraska Acad. Sci. pp. 4–5. April.

WHEELER, RICHARD P. and SMITH, G. HUBERT.

1953. The prehistory and early history of the Niobrara River basin. Missouri River Basin Project, Niobrara River Basin Development Plan, U.S. Dept Int., Bur. Reclam., Reg. 7, Denver.

WHITE, THEODORE E.

1952. Observations on the butchering technique of some aboriginal peoples: I. Amer. Antiq., vol. 17, No. 4, pp. 337–338.

1952. Preliminary analysis of the vertebrate fossil fauna of the Boysen Reservoir area. Proc. U.S. Nat. Mus., vol. 102, No. 3296, pp. 185–208.

1952. Suggestions on the butchering technique of the inhabitants at the Dodd and Phillips Ranch sites in the Oahe Reservoir area. Plains Archeol. News Letter, vol. 5, No. 2, pp. 22–28.

1953. Studying osteological material. Plains Archeol. Conf. News Letter, vol. 6, No. 1, pp. 8–16.

1953. Bison steaks and venison chops—the Flint-age way. Montana Farmer-Stockman, p. 8. September 15.

1953. A method of calculating the dietary percentage of the various food animals utilized by aboriginal people. Amer. Antiq., vol. 18, No. 4, pp. 296–398.

1953. Collecting osteological material, or how to get a block plastered. Plains Archeol. Conf. News Letter, vol. 6, No. 1, pp. 3–7.

1954. Preliminary analysis of the fossil vertebrates of the Canyon Ferry Reservoir area. Proc. U.S. Nat. Mus., vol. 103, No. 3326, pp. 395–438.

1954. Observations on the butchering technique of some aboriginal peoples, Nos. 3, 4, 5, and 6. Amer. Antiq., vol. 19, No. 3, pp. 254–264.

1955. Observations on the butchering techniques of some aboriginal peoples, Nos. 7, 8, and 9. Amer. Antiq., vol. 21, No. 2, pp. 170–178.

1956. The study of osteological materials in the Plains. Amer. Antiq., vol. 21, No. 4, pp. 401–404.

1960. Plains quotes, "The Big Dogs of the Earth Lodge People." Plains Anthrop., vol. 5, No. 9, p. 35.

WILLIAMS, BOB.

1953. The Ward Site, Le Flore County, Oklahoma. Oklahoma Anthrop. Soc. Newsletter, vol. 1, No. 9, pp. 2–9.

WILMETH, ROSCOE.

1956. The Payne Site. Mus. News, W. H. Over Mus., Univ. South Dakota, vol. 18, Nos. 11–12, pp. 18–21.

1958. Appraisal of the archeological resources of the Pomona and Melvern Reservoirs, Osage County, Kansas. Kansas State Hist. Soc.

1958. Report of the investigation of the Payne site, 39WW302, Walworth County, South Dakota, 1956. Archeol. Stud., Circ. No. 8. Pierre.

WITHERS, ARNOLD.

1950. Survey in eastern Colorado—University of Denver. Proc. Sixth Plains Archeol. Conf., Univ. Utah, Anthrop. Pap., No. 11, pp. 10–11.

WITTY, THOMAS A.

1961. Excavations in the Wilson Reservoir area, Russell County, Kansas. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 64.

1962. Archeological salvage in the Milford and Council Grove Reservoirs. Plains Anthrop., vol. 7, No. 16, pp. 79–80.

WOOD, W. RAYMOND.

1953. Additional data on the La Roche Focus. Abs. Proc. Nebraska Acad. Sci., May.

1954. Kipp's Post, 32MN1, Garrison Reservoir, North Dakota. Interim Report. State Hist. Soc., North Dakota.

1958. Excavations of a village site in the Table Rock Reservoir. Missouri Archeol. Soc. News Letter, No. 119, p. 3. February.

1961. 1960 field work at the Huff site, North Dakota. Plains Anthrop., vol. 6, No. 12, pt. 1, p. 56.

1961. The Pomme de Terre Reservoir in western Missouri prehistory. Missouri Archaeol., vol. 23, pp. 1–132. December.

WOODBURY, ANGUS M.; DURRANT, STEPHEN D.; and FLOWER, SEVILLE.

1958. Preliminary report on biological resources of the Glen Canyon Reservoir. Univ. Utah, Anthrop. Pap., No. 31.

1959. Survey of vegetation in the Glen Canyon Reservoir Basin. Univ. Utah, Anthrop. Pap., No. 36.

1961. Ecological studies of the flora and fauna of Navajo Reservoir Basin, Colorado and New Mexico. Univ. Utah, Anthrop. Pap., No. 55 (Upper Colorado Ser., No. 5).

1962. A survey of vegetation in the Curecanti Reservoir Basins. Univ. Utah, Anthrop. Pap., No. 56 (Upper Colorado Ser., No. 6).

WOOLWORTH, ALAN R.

1954. A search in the past [River Basin salvage in North Dakota]. North Dakota Outdoors, vol. 16, No. 9, pp. 6–7. (North Dakota State Game and Fish Dept.). Bismarck.

1956. Archeological investigations at Site 32ME59 (Grandmother's Lodge). North Dakota Hist., vol 23, No. 2, pp. 22–36.

WORMAN, FREDERICK C. V.

1959. 1957 archaeological salvage excavations at Los Alamos, New Mexico: A preliminary report. El Palacio, vol. 66, No. 1. Santa Fe.

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